THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

TELEGRAPHIC ADDRESS—LANCET, LONDON TELEPHONE NUMBER—5356 GERRARD

No. XXIV. OF VOL. I., 1910.
No. 4528. Vol. CLXXVIII. LONDON, SATURDAY, JUNE 11, 1910. Pp. 152—Price 6d.

ROYAL SOCIETY OF MEDICINE.

Temporary Address, during building of new house, 15, CAVENDISH SQUARE, W.

DIARY of MEETINGS on page 1662.

OXFORD MEDICAL PUBLICATIONS.

See page 7.	NEW WORKS.		See page 7.
A SYSTEM OF MEDICINE	(Vol. VII.)	...	OSLER and McCRAE.
A SYSTEM OF SYPHILIS	(Vol. IV.)	...	F. W. MOTT.
PRACTICAL OBSTETRICS	2nd Edition	...	TWEEDY and WRENCH.
A MANUAL OF SURGERY	3rd Edition	...	THOMSON and MILES.
PRACTICAL PATHOLOGY	4th Edition	...	G. SIMS WOODHEAD.

Henry Frowde, Oxford University Press. and Hodder & Stoughton, 20, Warwick Square, London, E.C.

Now Ready. 5s. net.

URIC ACID IN THE CLINIC:

A Clinical Appendix to "URIC ACID AS A FACTOR IN THE CAUSATION OF DISEASE."

By A. HAIG, M.D.Oxon., F.R.C.P.,

Senior Physician to the Metropolitan Hospital, and the Royal Hospital for Children and Women; late Casualty Physician to St. Bartholomew's Hospital. Assisted by KENNETH G. HAIG, L.R.C.P.Lond., M.R.C.S.Eng.

London: J. & A. Churchill, 7, Great Marlborough-street.

THE FOOD FACTOR in DISEASE. Including

the Pathology and Treatment of Bilious Attacks, the Paroxysmal Neuroses (Migraine, Asthma, Angina Pectoris, &c.), Gout, High Blood-pressure, &c. By FRANCIS HARE, M.D., Consulting Physician, Brisbane Hospital. For abstract see THE LANCET review—Feb. 17th, 1906, pp. 463 to 466.—Longmans, Green & Co. In two volumes. Price 30s. net.

INEBRIETY: its Medical Treatment.

Being the THIRD and FOURTH ANNUAL REPORTS of the NORWOOD SANATORIUM.

By FRANCIS HARE, M.D., Medical Superintendent.

Post free to members of Medical Profession on application to Secretary, The Mansion, Beckenham Park.

WILL BE READY SHORTLY.

ELECTRICAL TREATMENT for GENERAL PRACTICE.

Second and much Improved Edition. 150 pages, Illustrated.

A Manual giving precise and practical information to enable the General Practitioner to include this work in his practice.

Price 3s. net; by post, 3s. 3d. Sold to medical men only.

Published by F. Davidson & Co., 29, Great Portland-street, London, W.

By W. ARBUTHNOT LANE, M.S.

OPERATIVE TREATMENT of FRACTURES

Demy 4to. 7s. 6d.

CLEFT PALATE and HARE LIP.

Uniform with above. 5s.

The Medical Publishing Company, Ltd., 22½, Bartholomew Close, E.C.

THE OPERATIVE TREATMENT of CHRONIC CONSTIPATION.

Nisbet & Co., 22, Berners-street, W.

Third Edition. With 126 Illustrations. Price 14s. net.

DISEASES of the NOSE and THROAT.

By HERBERT TILLEY, B.S., F.R.C.S.,

Surgeon Ear & Throat Department, University College Hospital, London.

LANCET:—"It is clearly written, well illustrated, and readable, and is a book to which students and practitioners of medicine may turn with confidence."

BRITISH JOURNAL OF TUBERCULOSIS:—"An ideal manual for the practitioner.....The sections dealing with affections of the nose and its accessory cavities are particularly excellent and admirably illustrated. Tuberculosis of the larynx (section) is one of the best of its kind ever written."

H. K. Lewis, 136, Gower-street, London.

BY C. MANSELL MOULLIN, M.D. Oxon.,

F.R.C.S., Consulting Surgeon to the London Hospital; late Examiner in Surgery at the Universities of Oxford and Cambridge.

ENLARGEMENT of the PROSTATE. Third Edition. Price 6s.

INFLAMMATION of the BLADDER and URINARY FEVER. Price 5s.

London: H. K. Lewis, 136, Gower-street.

WHEN to OPERATE in INFLAMMATION of the APPENDIX. Third Edition now ready. Price 2s. 6d.

THE SURGICAL TREATMENT OF GASTRIC ULCER. Price 2s. 6d.

London: J. Bale & Danielsson, Ltd., 83-89, Gt. Titchfield-street.

New Work. 240 pp. Illustrated. 5s. net.

SPINAL CURVATURES: The General Principles of their Treatment.

With a Critical Analysis of the Gymnastic Theories.

"We must not fail to recognise, and to record our recognition of, the care and fulness with which the author has treated his subject. The book will be of value as containing the best exposition of this method of treatment."—THE LANCET.

"We attach importance to a supporting apparatus in the treatment of scoliosis. We do think that if the spine is supported in this way during growth it may grow straight, just as a bent tibia may."—BRISTOL MEDICO-CHIRURGICAL JOURNAL.

By HEATHER BIGG, F.R.C.S. Ed.

J. & A. Churchill, London.

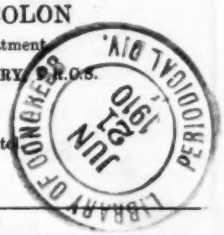
DISEASES OF THE COLON

and their Surgical Treatment.

By P. LOCKHART MUMMERY, F.R.C.S.

Price 10s.

Wright & Sons, Bristol.



JUST ISSUED.

DEADERICK ON MALARIA.

"Shows evidence of as close an acquaintance with the scientific as with the practical side of the question, and the combination of science and practice so happily blended results in one of the best books on malaria that it has been our privilege to read." —*Journal of the R.A.M.C.*

Price 20s. net. Send for Circular.

W. B. Saunders Company, 9, Henrietta Street, Strand, London.

A MEDICAL GUIDE to

CHATEL-GUYON-LES-BAINS (France).

Its Springs and their Uses in Diseases of the Stomach, Intestines and Liver, with Local Information.

(Constipation, Mucous-Colitis, Chronic Appendicular Pain.)

By SAINT-RENÉ BONNET, M.D. (Paris), L.R.C.P. (Lond.), M.R.C.S. (Eng.), Consulting Physician at Chatel-Guyon-les-Bains.

Copies will be sent gratis to English-speaking Practitioners on application to Dr. Saint-René Bonnet, Chatel-Guyon (Auvergne), France.

CLIMATOTHERAPY & BALNEOTHERAPY.

Being a Third Edition of "The Mineral Waters and Health Resorts of Europe," much Enlarged in respect to Medical Climatology. By Sir HERMANN WEBER, M.D., F.R.C.P., and F. PARKES WEBER, M.D., F.R.C.P., Physician to the German Hospital, London, and to the Mount Vernon Hospital for Diseases of the Chest, Hampstead. Edited by F. PARKES WEBER. Price 15s. net.

London: Smith, Elder & Co., 15, Waterloo-place.

Second Edition, just out, price 14s. net, with 234 pages of new matter and 23 new Illustrations, demy 8vo, cloth, pp. 20+784, and 130 Illustrations.

A TEXT-BOOK of MEDICAL JURISPRUDENCE and TOXICOLOGY.

By JOHN GLAISTER, M.D., D.P.H., Professor of Forensic Medicine and Public Health, University of Glasgow, &c., &c., &c.

Edinburgh: E. & S. Livingstone, 15, Teviot Place.

BY E. HURRY FENWICK, F.R.C.S.,

Surgeon to, and a Lecturer on Clinical Surgery at, the London Hospital.

With 80 Plates and 15 Text-Figures. 10s. 6d. net.

THE VALUE of RADIOGRAPHY in the DIAGNOSIS & TREATMENT of URINARY STONE. A Study in Clinical and Operative Surgery.

A HANDBOOK of CLINICAL CYSTOSCOPY. With 31 Plates and 144 Engravings in the Text. 18s. net.

URETERIC MEATOSCOPY in the DIAGNOSIS and TREATMENT of OBSCURE DISEASES of the KIDNEY. With 14 Plates and 45 Illustrations in the Text. 6s. 6d.

OPERATIVE and INOPERATIVE TUMOURS of the URINARY BLADDER. With 39 Illustrations. 5s.

ULCERATION of the BLADDER, SIMPLE, TUBERCULOUS, and MALIGNANT. With Illustrations. 5s.

London: J. & A. Churchill, 7, Great Marlborough-street.

LACTIKOFF

is the best preparation of Soured Milk. ¶ It is scientifically produced under Laboratory Conditions. ¶ Every bottle is guaranteed to contain the most desirable lactic organism (B. Massol) in active form. ¶ Samples and full particulars free to members of the Medical Profession, who are specially invited to inspect our methods, &c.

B. DAVIES & SON, LTD., DAIRY EXPERTS,

Telephones—2118 and 1111 Mayfair. 28, KING STREET, PORTMAN SQ., LONDON, W. Telegrams—Humanized, London.

FIBROLYSIN

A Thiosinamine preparation, easily soluble in water.

Used for softening

Scar Tissue, Stenoses, Strictures, and Contractions;

also for Internal Adhesions.

It is given by intramuscular injection, the injection being painless.

FIBROLYSIN

is supplied as a Sterile Solution in Bulbs of 2·3 c.cm.

BROMALIN

A satisfactory substitute for the

Alkali Bromides.

Does not give rise to symptoms of bromism.

Particularly recommended for

Prolonged Bromine Treatment.

Indications:

Epilepsy, Hysteria, Neurasthenia.

Sold in Powder and Tablets.

BROMALIN TABLETS

15 grains;

In bottles of 50 and 100.

LITERATURE ON APPLICATION TO—

E. MERCK, Darmstadt.

London Office:—16, JEWRY STREET, E.C.

RONCEGNO

Natural ARSENICAL Iron Water.

The Richest Known of all Arsenious Springs.

Highly recommended by the Medical Profession as most efficacious in the treatment of **Anæmia, Ailments peculiar to Females, Skin Affections, Nervousness, Rachitis, Chronic Rheumatism, and Malaria. A Powerful Tonic in General Convalescence.**

THE LANCET, Feb. 20th, 1909, says:—"The water of Roncegno is distinguished from the waters of its class by containing a remarkable quantity of arsenic. We have not examined a natural mineral water, at all events, containing so much arsenic."

SAMPLES sent gratis and carriage paid to MEMBERS of the MEDICAL PROFESSION on application to

RICHARD DAVIS, 20, Maddox Street, Regent Street (SOLE AGENT).

RONCEGNO, CLIMATIC HEALTH RESORT,

Austrian Tyrol (6 hours by rail from Innsbrück, 4 from Venice). ***MAY to OCTOBER.***

Ideal position, amidst grand Firs and Pine Woods. Equable, mild, and bracing Climate. Altitude, 2000 ft.

MODERN BATHING ESTABLISHMENT annexed to the Grand Hotels.

THE LANCET.

No. 4528. Vol. CLXXVIII. LONDON, SATURDAY, JUNE 11, 1910. Pp. 152.

CONTENTS.

The whole of the literary matter in THE LANCET is copyright.

THREE CLINICAL LECTURES, delivered at the Middlesex Hospital by Sir HENRY MORRIS, M.A., M.B. Lond., F.R.C.S. Eng., Emeritus Lecturer on Surgery in the Medical School.—Lecture III. (delivered on March 8th): On the Operative Treatment for Preventing the Destructive Renal Changes in Hydronephrosis and Pyonephrosis. — (*Illustrated*) 1597

ARRIS & GALE LECTURE on the Physiology of the Human Labyrinth. Delivered before the Royal College of Surgeons of England on March 18th, 1910, by SYDNEY SCOTT, M.S., M.B. Lond., F. R. C. S. Eng., Assistant Aural Surgeon to St. Bartholomew's Hospital; Surgeon for Diseases of the Ear and Throat to the National Hospital for the Paralysed and Epileptic 1601

ORIGINAL ARTICLES.

The Ear Ornaments of the Masai and the Natives of Kikuyu. By JOHN BLAND-SUTTON, F.R.C.S.Eng., Surgeon to the Middlesex Hospital, &c.—(*Illustrated*) 1608

A Further Study of Spinal Anæsthesia in Children and Infants. By H. TYRRELL GRAY, M.A., M.C. Cantab., F. R. C. S. Eng., Casualty Officer (late Resident Medical Superintendent), Hospital for Sick Children, Great Ormond-street, London.—III. Third Series of 100 Cases 1611

Case of Papilloma causing Hydronephrosis in a Horse-shoe Kidney. By JOHN MORLEY, M.B., Ch.B.Vict., Demonstrator of Anatomy, Manchester University; late House Surgeon, Manchester Royal Infirmary. — (*Illustrated*) 1617

Rat-bite Fever. By GEORGE S. MIDDLETON, M.D.Glasg., Physician to the Royal Infirmary, Glasgow. — (*Illustrated*) 1618

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A Fatal Case of Gastric Tetany. By GEORGE A. GORDON, M.D.Edin. 1618

Notes on an Interesting Case of Triplets. By GEORGE ALDRIDGE, L.M.S.S.A. Lond., Medical Officer of Health, Sheerness-on-Sea 1619

Notes on Two Cases of Imperforate Hymen in Sisters. By W. BOXER MAYNE, M.R.C.S. Eng., L.R.C.P.Lond. 1619

MEDICAL SOCIETIES.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY: The Wassermann Reaction in Eye-work.—Acute Hæmorrhagic Pancreatitis 1619

MEDICO-PSYCHOLOGICAL ASSOCIATION: Insanity as Disorder of Conduct.—Examination of Cerebro-spinal Fluid.—The Toxic and Exhaustion Psychoses... 1620

REVIEWS AND NOTICES OF BOOKS.

With a Prehistoric People: The Akikuyu of British East Africa. By W. Scoresby Routledge, M.A.Oxon., and Katherine Routledge, M.A. Trin. Coll., Dub. 1621

Fisiologia General. Por los Doctores L. Rodrigo Lavin (Cádiz) y A. Pi y Suner (Sevilla) 1622

Manual of Tropical Medicine. By Aldo Castellani, M.D., and Albert J. Chalmers, M.D.Vict. & Liverp., F.R.C.S. Eng., D.P.H.Camb. 1622

A Manual of Midwifery. By Henry Jellett, B.A., M.D. Dub., F.R.C.P. Irel., L.M. With the Assistance of W. R. Dawson, M.D.Dub., &c., H. C. Drury, M.D.Dub., &c., T. G. Moorhead, M.D.Dub., &c., and R. J. Rowlette, M.D.Dub. Second Edition... 1623

Die Vergiftungen. Von Dr. R. v. Jaksch. Zweite Auflage 1624

The History of St. George's Hospital. By George C. Peachey 1624

The Transactions of the Edinburgh Obstetrical Society ... 1625

Bacteriology for Nurses. By Isabel McIsaac 1625

LEADING ARTICLES.

HOSPITAL SUNDAY 1626

THE PUBLICATIONS AND WORK OF THE RESEARCH DEFENCE SOCIETY 1628

BIOLOGICAL ANALOGIES IN HISTORY 1629

ANNOTATIONS.

Government Subsidies for Scientific Research 1630

Ne Quid Nimis in Athletics ... 1630

Pathological Assassination 1630

The Development of the Trypanosomes in Tsetse Flies ... 1631

A Journey through the Air from a Medical Standpoint .. 1631

The Radiography of the Renal Pelvis and Ureter 1632

Bespectacled School Children.. 1632

The Treatment of Wounds of the Hand with Tincture of Iodine 1633

The Diagnosis of Pulmonary Embolism 1633

ANNOTATIONS (*continued*).

The International Medical Congress, 1909 1634

Yellow Fever in West Africa ... 1634

The London County Council and the Medical Inspection of School Children 1634

Discovery of a Vestigial Organ in the Human Brain 1634

REPORTS OF THE LANCET UPON DISINFECTANTS.

THE LANCET Test: Report on Disinfectant marked Cofectant (Surgical) received from Messrs. Edward Cook and Co. 1635

VITAL STATISTICS:
Health of English Towns ... 1643
Health of Scotch Towns 1643
Health of Irish Towns 1643

SPECIAL ARTICLES.

The Advancement of Medicine by Research: Addresses by the Earl of Cromer and Sir David Bruce 1635

The Official Recognition of Synthetic Products as Expressed by their Inclusion in Different Pharmacopœias 1638

The Annual Report of the Sanitary Commissioner with the Government of India for 1908.—(*Concluded*) 1639

Public Health Progress in the Philippines 1641

British Medical Benevolent Fund 1642

The Services: The British Red Cross Society 1644

The Congress of the Royal Hungarian Surgical Society 1646

Bristol: The University of Bristol Colston Society; The Bristol Deaf and Dumb Institution 1647

Birmingham: Medical Benevolent Society; Health of Coventry 1648

Liverpool: The Liverpool School of Tropical Medicine; The Care of Epileptics 1648

Wales: The Medical Treatment of School Children in Barry; Newport School for Mothers 1648

Scotland: Sir Hector Cameron's Resignation 1649

Ireland: Irish Medical Association; Royal College of Surgeons in Ireland; The Antituberculosis Campaign 1649

Paris: Disorderly Scenes at the "Concours pour l'Agrégation" 1651

Italy: The "Bitter Cry" of the Communal Practitioner; Italy's Tribute to Robert Koch 1651

Vienna: A Unique Obstetrical Event; The Vienna General Polyclinic 1652

United States of America: A New Medical Centre; The National Conference of Charities and Correction..... 1652

CORRESPONDENCE.

The Association of Medical Officers of Health (Dr. F. G. Crookshank, Mr. D. A. Bellhos, and Mr. E. G. Gibbs-Smith) 1644

The Operation for Cleft Palate (Mr. T. P. Legg) 1645

Is Appendicitis Contagious? (Dr. Donald W. C. Hood) ... 1645

Cancer and its Early Treatment (Mr. Percy Gully) 1646

Measles and the Post-office Authorities (Dr. F. G. Crookshank) 1646

The Lunacy Fees and the Resident Medical Officer 1646

The Cost of the Motor-car (Dr. J. Saffley) 1661

The Medical Law-Student 1662

LOOKING BACK.

(From THE LANCET, Saturday, June 9th, 1832.)

Application of Gastric Juice to the Purposes of Medicine.. 1642

OBITUARY.

Sir Francis Seymour Haden, F.R.C.S.—*With Portrait* 1653

William Rose, M.B., B.S. Lond., F. R. C. S. — *With Portrait* 1654

Elizabeth Blackwell, M.D. Geneva, N.Y.—*With Portrait* 1657

MEDICAL NEWS.

The Trinidad Association for the Prevention and Treatment of Tuberculosis 1657

The Health of Devonport 1616

Post-Graduate Medical Work, University of Vienna 1621

St. Thomas's Hospital Medical School 1647

Donations and Bequests 1653

Society for Relief of Widows and Orphans of Medical Men 1658

The Newton Abbot Hospital ... 1659

Literary Intelligence 1659

Presentation to Professor W. Roux 1659

St. Thomas's Hospital 1659

King Edward VII. Sanatorium, Midhurst 1659

The Sewerage of Tiverton 1659

The Medical Golfing Society ... 1659

The Poor-law Medical Officers' Association of England and Wales 1659

The Coroners' Society 1659

Books, &c., received 1660

Appointments 1660

Vacancies 1660

Births, Marriages, and Deaths 1661

Notes, Short Comments, and Answers to Correspondents.. 1661

Medical Diary 1662

Acknowledgments of Communications received 1664

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

COVER

PAGE

BALE, SONS & DANIELSSON:—
Moullin .... Inflammation of the Appendix 1
" .... Treatment of Gastric Ulcer 1

CHURCHILL, J. & A.:—
Bigg ..... Spinal Curvatures 1
Fenwick, E. H. .... Clinical Cystoscopy 1
" .... Operative, &c., Tumours of the Urinary Bladder .. 1
" .... Ulceration of Bladder .. 1
" .... Diagnosis, &c., of Urinary Stone 1
" .... Obscure Diseases of the Kidney 1
Haig ..... Uric Acid 1

FROWDE AND HODDER & STOUGHTON:—
Oxford Medical Publications 1

LEWIS:—
Moullin .... Enlargement of the Prostate 1
" .... Inflammation of the Bladder 1
Tilley ..... Diseases of the Nose, &c. 1

LIVINGSTONE (Edin.):—
Glaister .... Medical Jurisprudence and Toxicology 1

LONGMANS, GREEN & CO.:—
Hare ..... Food Factor in Disease 1

MEDICAL PUBLISHING CO.:—
Lane ..... Cleft Palate & Hare Lip 1
" ..... Treatment of Fractures 1

NISBET & CO.:—
Lane ..... Chronic Constipation .. 1

SAUNDERS COMPANY:—
Deaderick .. Malaria .. .. PAGE

SMITH, ELDER & CO.:—
Weber & Weber .... Climatotherapy and Balneotherapy 1

WRIGHT & CO. (Bristol):—
Mummery .. Diseases of the Colon .. 1

MEDICAL LIBRARIES, &c.:—
Bonnet—Medical Guide to Chatel-Guyon-les-Bains 1
Davidson & Co.—
Electrical Treatment for General Practice 1
Norwood Sanatorium—
Hare: Inebriety 1

BAILLIERE, TINDALL & COX:—
Bidwell .... Intestinal Surgery 9

BALE, SONS & DANIELSSON:—
Bonanquet & Clogg ..... The Stomach, &c. 8
Colum ..... Practice of Anæsthetics 9
Gay ..... General Surgical Technique 8

CASSELL & CO.:—
Herman .... Diseases of Women 9
Lewis ..... Delicate Children 9

CHURCHILL, J. & A.:—
Box ..... Post-Mortem Manual .. 3
Craig ..... Malarial Fevers, &c. .. 5
Cripps ..... Ovariotomy, &c. 8
Galabin & Blacker .. Practice of Midwifery.. 3
Goodhart & Still ..... Diseases of Children 3

CHURCHILL—(Continued).
Hamer ..... Manual of Hygiene 3
Hartridge .. Refraction of the Eye .. 3
" .. The Ophthalmoscope .. 3
Jellett ..... Practice of Midwifery.. 3
" ..... Practice of Gynæcology 3
" ..... Midwifery for Nurses .. 3
Jessop ..... Ophthalmic Surgery &c. 3
Latham .... Medical Treatment 3
Pollard..... Minor Surgery, &c. 3
Smith, F. J. Medical Jurisprudence 3
Thorne, Bezly .... Schott Nauheim Treatment, &c., of the Heart 9

FISHER UNWIN:—
Baedeker's Guides for Tourists 9
Baumgartner Appendicitis 9

FROWDE AND HODDER & STOUGHTON:—
Osler's System of Medicine 7
System of Syphilis 7
Thomson & Milne..... Manual of Surgery 7
Tweedy & Wrench .. Practical Obstetrics 7
Woodhead .. Practical Pathology 7

GRESHAM PUBLISHING CO.:—
Anatomical Model 11

GRIFFIN & CO.:—
Aitchison.... Medical Handbook 9
Brend ..... Medical Jurisprudence and Toxicology 9
Brooke..... Tropical Medicine, &c 9
Caird & Cathcart .. Surgical Handbook 9
Davies ..... Handbook of Hygiene.. 9
Elder & Fowler .... Diseases of Children 9
Porter & Godwin .. Surgeon's Pocket-book 9
Thoinot & Masselin .. Outlines of Bacteriology 9

LEWIS:—
Beaumont .. Injuries of the Eyes 5
Binnie ..... Manual of Operative Surgery 5
Carter ..... Elements of Practical Medicine 5
Coleman .... Extraction of Teeth.... 5
Gordon..... Rain-bearing Winds on the Prevalence of Phthisis 5
Lewers..... Diseases of Women 8
" ..... Cancer of the Uterus .. 8
Lewis's Medical Ledger 6
Neumann .. Otitic Cerebellar Abscess 5
Parkes & Kenwood.. Hygiene & Public Health 5
Powell, Sir R. D..... Diseases and Disorders of the Heart 5
Thursfield & Branson .. Medical Morbid Anatomy, &c. 5
Walford .... Cerebral Congestion, &c. 5
White ..... Catarrhal Fevers 5

MACMILLAN & CO.:—
Ballance .... Surgery of the Brain .. 8

SHAW & SONS:—
Cautley .... Diseases of Infants and Children 8

SMITH, ELDER & CO.:—
Lawson .... Diseases of the Eyes 8

THE LANCET:—
Territorial Medical Service 8

MEDICAL LIBRARIES, &c.:—
Baker—Book Bargains 9
Beasley & Ketley—Stammering 9
Behnke—Stammering 9
Hygienic Handbooks 8
Lewis's Medical Circulating Library.. 6
Matthews Bros.—
Wood: Application of Trusses.... 8

OFFICIAL AND GENERAL ANNOUNCEMENTS

COVER

HEALTH RESORTS, BATHS, &c.—
Roncegno 11

OFFICIAL NOTICES:—
Royal Society of Medicine..... 1

APPOINTMENTS VACANT:—
Albert Dock Hospital 71
Bradford Royal Infirmary 70
Brooknock County and Borough Infirmary 71
Bury Infirmary 70
Cardiff Infirmary 70
Coventry and Warwickshire Hospital 69
East Riding Lunatic Asylum, Beverley 69
Evelina Hospital for Sick Children 70
Gartloch Mental Hospital 71
General Hospital, Birmingham 69
Gloucestershire Royal Infirmary and Eye Institution 71
Great Northern Central Hospital 71
Hereford County and City Asylum 71
Hospital for Sick Children, Great Ormond-street 69
Hospital for Women, &c., Leeds 70
Indian Medical Service 68
Ingham Infirmary and South Shields, &c., Dispensary 69
Leicester Borough Asylum 71
Lincoln County Hospital 69
Liverpool Eye and Ear Infirmary 70
London Throat Hospital 68
National Sanatorium Association .. 70
Newport and Monmouthshire Hospital 70
Nottingham Children's Hospital..... 70
Nottingham City Asylum 70
Nottingham General Hospital 69
Queen's Hospital, Birmingham 69
Queen's Hospital for Children, Hackney-road 68
Royal Free Hospital, Gray's Inn-road 70
Royal Hampshire County Hospital, Winchester..... 68
Royal Infirmary, Hull..... 70
Royal Mineral Water Hospital, Bath 69
Royal National Hospital for Consumption, Ventnor 70
Royal Surrey County Hospital, Guildford 68
Royal Waterloo Hospital for Children and Women 68
Salford Union Infirmary..... 69
Sheffield Royal Hospital..... 69
Stockport Infirmary 68
Surrey County Lunatic Asylum, Brookwood 71
Taunton and Somerset Hospital 70
Teignmouth Hospital 71
Victoria Hospital for Children..... 71
Warwickshire County Council..... 70
West Bromwich District Hospital ... 69
West End Hospital for Nervous Diseases.. 70
Westminster Hospital 70
West Riding Asylum, Wakefield 68
Worksop Dispensary and Victoria Hospital 71

ASSISTANCIES, MEDICAL 77

ASYLUMS, HOMES, &c.:—
Applegarth Sanatorium, Northallerton 67
Ashwood House, Kingswinford 61
Barnsley Hall, Bromsgrove 62
Barnwood House Hospital 62
Bishopstone House, Bedford 61
Buntingford House Retreat, Buntingford 61
Camberwell House, Peckham-road.... 61
Cheadle Royal 61
Clarence Lodge, Clapham-park..... 61
Conifers, Hampton Wick 61
Coppice, The, Nottingham 62
Crooksbury Sanatorium, Surrey 64
Dalrymple House, Rickmansworth .. 60
Dartmoor Sanatorium 65
David Lewis Colony, Alderley Edge .. 60
Earlswood Asylum, Redhill 63
Ghyll Retreat, Cockermouth 64
Grove House, Church Stretton 64
Grove, The, Catton, Norwich 62
Haydn Brown, Caterham Valley..... 68
Hasiemere Nursing Home 58
Haydock Lodge, Newton-le-Willows.. 63
Home for Epileptics, Maghull 60
Home Sanatorium, West Southbourne 65
Hon. Sec., Chancery-lane 68
Inverdeen Sanatorium, Dairsie 65
Invernith Lodge Retreat, Colinsburgh 64
Kingsdown House, Box 61
Lady Superintendent, Streatham 58
London Fever Hospital, Islington 68
London Open-Air Sanatorium, Wokingham 65
Malling Place, Kent 62
Melbourne House, Leicester 60
Middleton Hall, Co. Durham..... 61
Mile McNeile, Eastbourne 64
Moat House, Tamworth 62
Newlands House, Tooting 61
Newmains Retreat, Lancashire 64
Nethermuir-on-Dee, Banchory 64
Nordrach-upon-Mendip Sanatorium .. 65
Northlands Retreat, Wandsworth.... 60
Northwoods House, Winterbourne.... 64
Norwood Sanatorium 64
No. 578, L.O., Strand..... 68
No. 650, L.O., Strand..... 68
No. 662, L.O., Strand..... 64
No. 666, L.O., Strand..... 68
No. 670, L.O., Strand..... 64
Ocean Island, Heybridge 60
Otto House, West Kensington 6
Parkfield, Burgess Hill 66
Peckham House, Peckham-road 64
Plas-yn-Dinas, Merionethshire..... 64
Plympton House, South Devon 62
Portsmouth Corporation Mental Hos. 63
Queen Alexandra Sanatorium, Davos Platz..... 64
Roberts, Golder's Green 68
St. Andrew's Hospital, Northampton 62
St. Luke's Hospital, E.C. 64
Sanatorium Clavadel 63
Shaftesbury House, Formby-by-the-Sea 63
Springfield House Private Asylum, Bedford 62
Stocker, Craven-street 68

ASYLUMS—(Continued).
Stretton House, Church Stretton..... 62
The Grange, Rotherham 61
The Retreat, York 61
Vale of Clwyd Sanatorium..... 65
Warneford Asylum, Oxford 61
Whitmead Hill Sanatorium, Farnham 67
Wonford House, Exeter 62
Wye House, Buxton 62
Yarrow Convalescent Home, Broadstairs..... 63

FINANCIAL, &c.:—
Birkbeck Bank..... 58
Came, Woodhall Spa—
Financial Co-operation 58
Equitable Reversionary Interest Soc. 58
National Radium Trust, Ltd. 15, 16

HEALTH RESORTS, BATHS, &c.:—
Aberystwyth, the Biarritz of Wales .. 60
Bad Wildungen 66
Felixstowe 39
Harrogate 67
Langenschwalbach 67
Leysin, Switzerland 66
Neuenahr 67
Peebles Hotel Hydropathic 60
Roncegno 91
Royal Ems, Germany 67
St. Moritz, Engadine..... 67
Smedley's, Matlock 60
Woodhall Spa Bromo Iodine Baths .. 66

HOMES WANTED:—
Box 1785, Willings, Strand 68

HOTELS:—
Felixstowe—The Felix..... 39
Tunbridge Wells—
The Wellington Hotel 68
White Hart Hotel, Margate 62

HOUSE & ESTATE AGENTS.. 75, 76

LIFE & FIRE ASSURANCES:—
Guardian Assurance Co. 19
Prudential 58
Royal Exchange Assurance 68

MASSAGE:—
H. M. S., Regent's-park 60
Incorporated Society of Trained Masseuses 60
London School of Massage, &c. 60

MEDICAL ACCOUNTANTS, &c.:—
Turner 77

MEDICAL AGENTS:—
Blundell & Rigby 76
Fieldhall, Limited 72
Manchester Medical Agency 72
Manchester Medical Association 76
Medical Agency 72
Moore & Co. 71
Needes, Herbert 71

MEDICAL AGENTS—(Continued).
Needes, J. C. 73
Peacock & Hadley 73
Reynolds & Branson 76
Scholastic, Clerical, &c., Assoc. 75
Turner 74

MEDICAL SCHOOLS:—
(London.)
St. Mary's Hospital Medical School .. 57
West London Post-Graduate College 57

NURSING INSTITUTES:—
General Nursing Association..... 60
Hospital for Sick Children, Great Ormond-street 60
Leeds Trained Nurses' Institution.... 59
London Nurses' Association 59
Male Nurses' Co-operation 59
Mental Nurses' Co-operation..... 60
Metropolitan Temperance Association 59
National Hos. Male Nurses' Assoc.... 60
Nurses' Co-operation, Portland-place 59
St. Bartholomew's Hos. Nurses' Inst. 60
St. John's House 60
St. Luke's Hospital, E.C. 59
Temperance Male and Female Nurses' Co-operation 59
Temperance Male Nurses' Co-operation 59

OFFICIAL NOTICES:—
Brompton Hospital for Consumption 57
City of London Lying-in Hospital ... 57
Edinburgh Post-Graduate Vacation Course 56
London Post-Graduate Association .. 56
London School of Clinical Medicine .. 57
Medical Graduates' College, &c. 57
Middlesex Hospital Medical School .. 57
Oxford University 58
Queen Charlotte's Lying-in Hospital. 57
Royal College of Physicians of London..... 57
Royal National Orthopædic Hospital 57
St. Bartholomew's Hos. & College 56
St. Mary's Hospital Medical School .. 57
Throat Hospital, Golden-square..... 57
University of Bristol 58
University of Cambridge..... 58
University of Durham 57
York-road General Lying-in Hospital, Lambeth 57

PARTNERSHIPS & PRACTICES 76

RAILWAY & STEAMSHIP CO.'S:—
Albion S.S. Co.—Trips to Norway 53
New Zealand Shipping Co..... 58
R.M.S.P.—Tours 56
" Special Yachting Cruises .. 56

TUTORS & LECTURERS:—
Austin 58
Beckton 54
Gemmell 58
Knight 56
No. 118, L.O. .. 78
No. 115, L.O. .. 58
No. 684 L.O. .. 58
Pennington's Med. Classes 58
Schnelle 59
Weymouth 56

(*For Index to Trade and Miscellaneous Advertisements see page 4.*)

Three Clinical Lectures

Delivered at the Middlesex Hospital

BY SIR HENRY MORRIS, M.A., M.B. LOND., F.R.C.S. ENG.,

EMERITUS LECTURER ON SURGERY IN THE MEDICAL SCHOOL.

LECTURE III.[1]

Delivered on March 8th.

ON THE OPERATIVE TREATMENT FOR PREVENTING THE DESTRUCTIVE RENAL CHANGES IN HYDRONEPHROSIS AND PYONEPHROSIS.

GENTLEMEN,—I will first enumerate and classify the various causes of hydronephrosis and pyonephrosis, and briefly describe the symptoms caused by both the open and closed distension sacs, or, in other words, by intermittent and persistent retention of urine or urine with pus in the renal pelvis and calyces, and I will then proceed to illustrate the proper treatment for preventing the more advanced and destructive changes which affect the kidney in these diseases by narrating a few cases which have been recently under my care.

[I will here omit these introductory remarks and pass at once to an account of the cases and the lessons taught by them.]

I. HYDRONEPHROSIS.

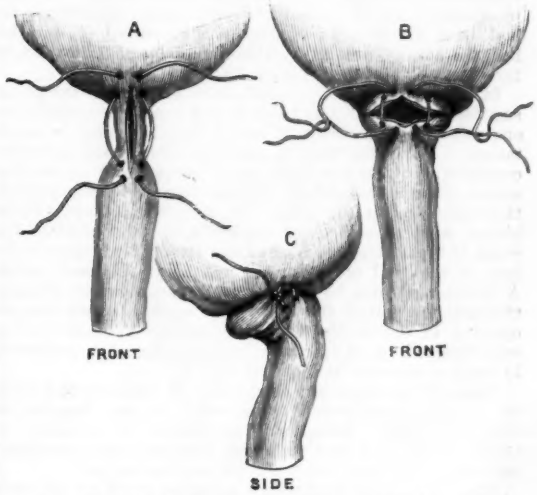
The patient, a female domestic servant, aged 30 years, was an in-patient at the Middlesex Hospital in 1898 from July 1st to July 6th and again from Sept. 23rd to Oct. 14th, and gave the following history of herself.

For 12 years she had suffered a sharp tearing pain in the right side of her abdomen and right loin, sometimes shooting downwards to the right groin. These attacks had recurred at intervals of about one month, usually lasted 24 hours, and were accompanied by vomiting. They quite incapacitated her and compelled her to keep in bed. For the last year or so they had been more frequent and more severe, and just prior to her admission into the hospital in July she had had three attacks in seven weeks, though for eight weeks preceding her readmission in September she had been entirely free of any attack. Any great exertion, such as hard work or violent exercise, frequently brought on an attack, and rest in bed gave relief. She thought she passed less urine during a period of pain and just before, and at these times there had frequently been blood in it. The urine was often very thick just after a severe attack. There had never been any pain or undue frequency in micturating. During the times she was under observation in the hospital the quantity of urine passed in 24 hours varied from 20 to 50 or 55 ounces, and the specific gravity of it from 1004 to 1022.

A daily examination of the urine was made for three consecutive weeks in September and October, 1898, without detecting in it either blood, pus, or albumin; yet on other occasions a few leucocytes, a trace of albumin, a little excess of mucus, a few epithelial cells, and one or two granular casts were observed. No enlargement of either kidney could be detected, but at no time whilst she was in hospital had we the opportunity of examining her in one of her attacks; and only on two or three occasions did she complain of slight aching or an "uncomfortable sensation" in one or other loin and hypochondrium. There was, however, slight tenderness on palpation of the right loin and right side of the abdomen as far forward as the right semilunar line; there was also more resistance to pressure on this side than on the left. As she was free from pain and there seemed no distinct indication for operative treatment she was made an out-patient under one of the assistant physicians. In less than a month, however, she was again re-admitted. She then stated that 14 days after leaving the hospital she had a severe attack of pain in the right side of the abdomen, and that a dull, aching pain in the right loin, which completely disabled her from following her occupation, had continued ever since. A sample of her urine which she brought with her contained blood. Renal calculus was suspected as the probable cause of the symptoms, but the alternative diagnosis of intermittent hydronephrosis was not lost sight of. An exploratory operation on the right kidney was decided upon and was carried out on Nov. 7th, 1898. The kidney was brought on to the surface of the loin and thoroughly searched for a calculus, a digital examination of the interior through an incision along the convex border of the kidney having been made for the purpose. No stone being found, the renal pelvis, which was ballooned to the size of an orange, was incised, and the finger, introduced through the opening, made a further examination of the interior of the organ. A bougie was next passed along the ureter into the bladder in search of a stone in the ureter. The calyces of the kidney were found to be dilated, and the upper end of the ureter close to the renal pelvis was constricted and sclerosed, so that the bougie passed with resistance through it.

The cause of the hydronephrosis was thus evident, and therefore, instead of excising the kidney, the wound along its convex border was sutured, the strictured part of the ureter was divided by a longitudinal incision and sutured in the manner shown in the woodcut (Fig. 1), and the incision

FIG. 1.



From Morris's book, Surgery of the Kidney and Ureter. (Kindly lent by Messrs. Cassell and Co.)

in the renal pelvis was closed by sutures. The parietal wound was sutured with six deep and six superficial silk stitches, and the bladder was sounded to be sure that no calculus had slipped into it from the ureter during the operative procedures.

During the first 24 hours after the operation some blood was passed with the urine. A drain-tube reaching to the kidney was removed from the lumbar wound on the second day. No urine escaped at any time from the lumbar wound. The patient made an excellent recovery, and was really well on the eighteenth day; she was, however, detained in the hospital until Dec. 21st, 1898, in case of any subsequent complication occurring.

On June 6th, 1899, that is seven months after the operation, the patient came to the ward to report herself, when she told us that she had been in excellent health, and had had no pain or trouble of any kind since leaving the hospital. At this time the lower end of the right kidney could be felt below the edge of the rib; there was no tenderness on pressure, and no enlargement; the kidney seemed well fixed in position.

Nothing more was heard of this patient for nearly 10½ years; but on Nov. 19th, 1909, I received a note from Mr. Kellock telling me that the patient had been admitted to hospital under his care on account of some pain and tenderness on the right side of the abdomen, and adding that she did not seem at all ill, that he did not think anything surgical was required to be done, and that the urine

[1] Lectures I. and II. were published in THE LANCET of May 28th (p. 1455) and June 4th (p. 1517), 1910, respectively.

was normal except for a few leucocytes and a slight trace of albumin.

I took the opportunity, so kindly given to me by Mr. Kellock, to visit the patient. I ascertained that she had enjoyed good health during the 11 years since the operation until a week before her admission into the hospital ward, when she had an attack of pain in the abdomen with a temperature of 102° F. lasting two days. Nothing further followed. Nothing abnormal was revealed by the X rays, and after a stay of 10 days in the hospital she was discharged.

Remarks.—This case affords us the opportunity of judging of the lasting benefit of the operation after an interval of 11 years, and for this reason I have related it to you.

It chanced, when looking over the volume of hospital cases in which the notes of this patient were bound up, that I came across those of an almost parallel case which also was under my care in April and May of 1898. It was that of a married woman, aged 30, who had suffered several attacks of intense pain, with vomiting, coming on suddenly and associated with a certain amount of hæmaturia. Since the first attack the urine had sometimes been chocolate-coloured and very offensive. The attacks had come on under different circumstances. One commenced just as she had stepped down from an omnibus; another just as she was rising from the recumbent position after sleeping. Sometimes with the onset of pain she had had shivering, followed by sweating and a sense of burning heat. Sometimes she had been violently sick. The attacks varied in duration from 12 hours to 2 days. There had been no indication, so far as was known, of any renal distension.

In this case also the renal colic and other symptoms suggested renal calculus; but in any case it was only by an operation that the cause, if not a calculus, could be ascertained. I thought that in great probability the abnormal condition would be one which could be removed by surgical means. Search was made in this case by an exploratory operation exactly as in the first. No stone was present, but the kidney was moveable and markedly hydronephrotic. The cause of the obstruction was a valve attached to the posterior half of the wall of the ureter just below the renal pelvis. A bougie could not be passed from above downwards along the posterior wall of the ureter, but easily upwards from an opening in the ureter below the valve. This obstruction was removed by an operation precisely like that performed in the first case and as shown in Fig. 1.

Recovery was rapid and complete. In response to a letter of inquiry, this patient also came to the hospital on June 6th, 1899. Except for an attack of influenza at Christmas she had been quite well ever since the operation; her urine was tested and found to be quite normal.

Remarks.—These cases afford complete proof of the value of uretero-plastic operations as a means of securing absolute immunity from the severe attacks of pain and other symptoms caused by hydronephrosis; and of putting a stop to the further disorganising effects of ureteral obstruction on the structure and function of the kidney, whether the obstruction is due to valve, stricture, or other such-like condition.

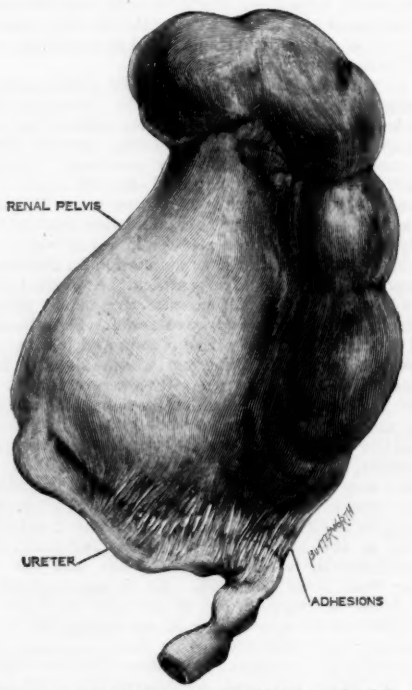
I have successfully operated in precisely the same way in several cases, and in one only has it been necessary to remove at any subsequent period the kidney so treated. In that case the renal pelvis was the size of a cricket-ball, and the operation was followed by entire disappearance of all symptoms. Twelve months later she was delivered of a fine child at full time, and subsequently she continued well for a considerable period. She was of a very active and excitable temperament, and a devotee to riding and hunting. Whether from chill or other cause I am unable to say, but later on, after a second confinement, she had repeated attacks of pyelitis in the same kidney, going over a period of two or three years; and in April, 1906, eight years after the ureteroplasty, I removed the organ, in the renal pelvis of which was a large secondary calculus.

The liability of cases of uncomplicated hydronephrosis being mistaken for renal calculus is very great. If the parenchyma of the kidney, as well as the renal pelvis and calyces, has not become dilated so as to form a large intermittent or permanent abdominal swelling; or even if there is an intermittent tumour, but the practitioner does not happen to see the patient during the dilated stage of the kidney, the diagnosis first made, and probably tenaciously held, will be renal calculus. If the sudden attacks of pain are complicated with vomiting, shivering, and hæmaturia, and more especially if the attacks are induced by violent exertion or sudden movements, they will certainly be regarded as renal colic of calculous origin.

In some cases the hydronephrotic kidney, even in spite of an extreme degree of atrophy of the renal parenchyma, does not attain to a size larger than the normal organ. I have known a kidney of this kind, when the dilated renal pelvis has been in a collapsed state, pass undetected even in the course of an exploratory operation. I recall being present on one occasion when the surgeon, having commenced the operation with the pre-formed conviction he would find a stone, after manipulating the kidney in the depth of the wound, remarked, with a look of surprise and disappointment, that the kidney was soft and not enlarged and did not, he was sure, contain a calculus. He was about to close up the wound in the loin when I ventured to suggest that it would be well to bring the kidney on to the surface of the loin and inspect it. Having done so, the surgeon found the organ in such an advanced stage of hydronephrosis that nephrectomy was clearly indicated and carried out with most successful ultimate result.

Some years ago when the X rays were coming into common use in surgery I did not hesitate to predict that in future many renal affections which could be corrected by operative treatment only would be allowed to drift on unrelieved because, though symptoms pointed to calculus as their cause, the X rays did not yield a shadow in verification of this diagnosis. How true this forecast has been time has amply proved. I could quote a number of cases in confirmation of it, cases in which patients have lingered on in suffering, disinclined to, and often discouraged from, undergoing an operation on the ground that as a calculus could not be discovered by the X rays an operation on the kidney would be useless. Perhaps even worse still, unnecessary operations have been undertaken, in the absence of the shadow of a renal calculus, on some other organ such as the appendix cæci. I have had to perform nephrectomy in two cases within the last ten months for simple hydronephrosis too advanced to allow of any plastic operation being useful, in patients who were supposed to have renal calculus and on whom operation on the kidney was not performed because of the negative results of examination by the X rays. In each case I urged an operation, believing the

FIG. 2.



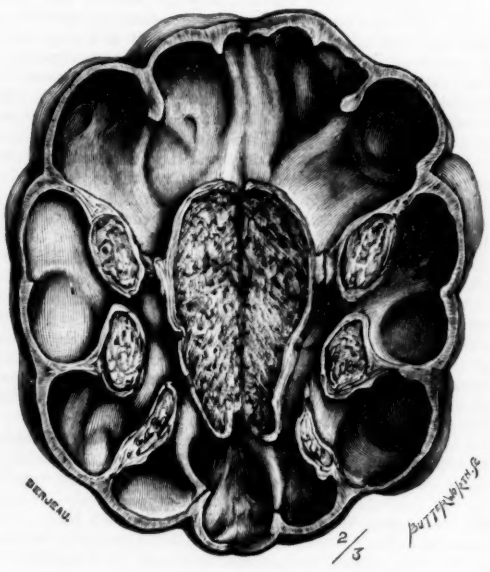
Back view of right kidney, showing dilated renal pelvis and adhesions binding the ureter to it. The ureter is seen to come off from the renal pelvis some way above the lowest point of the pelvis.

cause of the symptoms to be due to intermittent distension from ureteral obstruction.

One of these patients was a Parsee lady from Bombay who came to me accompanied by Mr. P. P. Bhedwar of Blackheath, and who for some years had suffered renal colic on the right side. I operated on June 17th, 1909. The cause of the symptoms was found to be a large hydronephrotic sac due to a sigmoid curve at the upper end of the ureter, which was tied down by areolar tissue bands to the surface of a ballooned renal pelvis in the manner shown in Fig. 2. The operation of pyelo-ureterotomy, or perhaps pyelo-ureterotresis, such as I have described fully in my book on the Surgery of the Kidney and Ureter (Vol. II., pp. 437 and 438; also pp. 533-536), and in my Hunterian lectures (1898, p. 20 *et seq.*), would have completely removed the cause of obstruction and prevented the progress of the destructive changes. (Operation explained and illustrated by diagrams.)

The second case was that of a Roman Catholic priest, aged 32, who was sent to me by Mr. E. D. Agnew of Bishop's Stortford, upon whom I operated in December last. For 11 years he had suffered attacks of right renal colic attributed for years to renal calculus. After repeated skiagrams had been taken with negative results the appendix cæci was accused, and in 1905 removed. On the tenth day after the appendectomy he had the worst attack of pain he had ever experienced, and others recurred with even greater frequency than ever before up to the time when I first saw him in December, 1909. At the operation I found the ureter bound down in a sigmoid manner to the surface of the ballooned renal pelvis; and in this instance the curves were so strongly impressed upon the tube that after the adhesions had been divided and the ureter set free and straightened out it sprang back again into its curved form when left alone; and this it did again and again, showing it would have been useless to have merely divided the adhesions without also doing a plastic operation on the renal pelvis and ureter, and in this case resecting a piece of the ureter also.

FIG. 3.



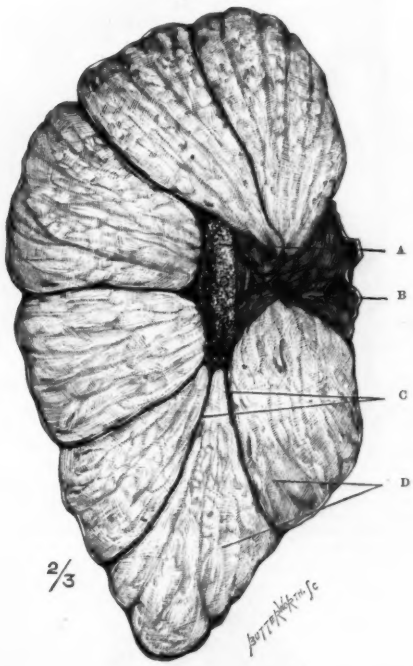
Sacculated hydronephrosis showing a considerable ingrowth of fat at the hilum. From Morris's book, Surgery of the Kidney and Ureter. (Kindly lent by Messrs. Cassell and Co.)

In a third patient who was recently under my care for a renal trouble the appendix cæci had been removed on the supposition that it was the cause of the disorder; but much to her disappointment she experienced a severe attack in the third week after the operation in every respect similar to those she had suffered previously.

In both the cases just related nephrectomy might have been escaped, and the kidney could have been saved by pyelo-ureterotresis, had the operation been performed in proper time.

I am convinced that the profession generally does not realise the importance of recognising the symptoms of hydronephrosis as early as possible. I am sure that attention needs to be drawn to such cases as I have narrated. I am certain that surgeons should bestow a little more thought on what is capable of being done in the earlier stages of simple hydronephrosis, and exercise an equal amount of skill on the plastic surgery of the renal pelvis and ureter to that which they are in the present day devoting to gastric and intestinal affections and the various operations for their relief. If they would do so, the sum of human suffering would soon be reduced by an immeasurable number

FIG. 4.



Fatty transformation of the kidney. From Morris's book, Surgical Diseases of the Kidney and Ureter; Dr. Rickards's case, Fig. 118, p. 74, vol. ii. A, Calculus. B, Renal pelvis obliterated by dense, tough cicatricial-like tissue. C, Fibrous septa in which run large blood-vessels. D, True fatty tissue. (Kindly lent by Messrs. Cassell and Co.)

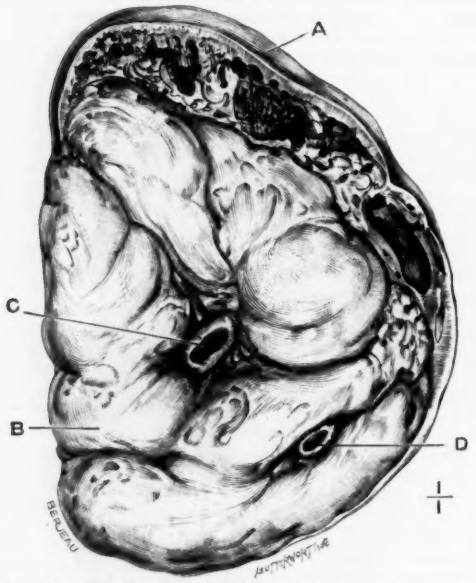
of very distressful years, and hundreds of patients who otherwise are destined to lose the functional activity of one of their kidneys would be spared the pain and risk attending the disorganising process, and would be enabled to retain the affected organ in a very high degree of efficiency, instead of, later on, in accordance with present practice, having to get rid of it as an useless and health-destroying encumbrance.

II. FATTY TRANSFORMATION OF THE KIDNEY.

There are scattered through the standard works on diseases of the kidney, and in the Transactions of the Pathological Society of London, a few instances in which the whole or the major part of the kidney was replaced by fatty or fibro-fatty matter. In some of them this fatty transformation was associated with calculus, and in others with suppurative pyelonephritis. In some instances the contour of the organ has been preserved, and the dimensions not greatly, if at all, increased; in others large irregular tumours have been formed of several pounds in weight, and of the size of the human head or bigger. In some the fatty tissue is an extension inwards from the circumrenal fat, which after filling the hilum spreads throughout along the connective tissue surrounding the larger blood-vessels; thus it compresses and causes atrophy of the tubular structure to the degree of absolutely destroying it, or spreads the atrophied renal substance like a capsule over the tumour.

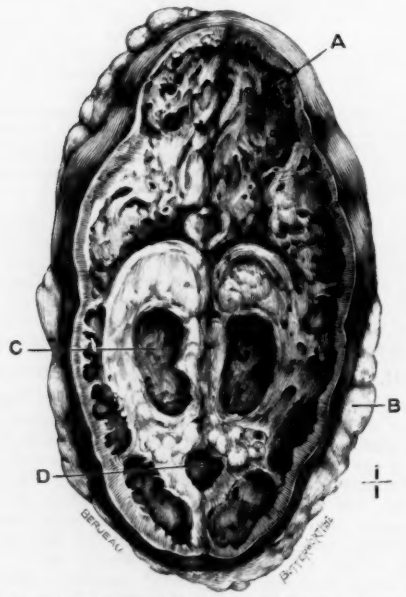
The commencement of this particular inward growth of fat is seen in Fig. 3. In other cases the conversion is due to a hypertrophy of the fat, which in small amount is normally present between the apices of the renal pyramids, and which as it grows into the interstitial tissue of the organ slowly invades and destroys the renal tissue; but even when the fat has gradually distended the capsule the kidney still preserves its normal general outline.

FIG. 5 A.



Transformation of pyonephrotic kidney into fat. A, Remnant of pyonephrotic kidney not yet transformed into fat. B, Fatty mass of transformed organ. C, D, Sinus tracks left by drainage-tubes. Vertical section through convex border and renal pelvis.

FIG. 5 B.



Transformation of pyonephrotic kidney into fat. A, Remnant of pyonephrotic kidney not yet transformed into fat. B, Fatty mass of transformed organ. C, D, Sinus tracks left by drainage-tubes. Section of the sacculated portion as yet untransformed into fat.

In the case published in 1883 by Dr. Rickards the whole of the left kidney was transformed into true adispose tissue (Fig. 4), and was half as large again as normal. In the case published by Godard the lower half only of the kidney was converted into a mass of ordinary fat, and a large calculus was lodged in the renal pelvis, as in Rickards's case. In another case there were small abscesses found in the fat, and in one of the abscesses a calculus. In a fourth case the transformed kidney was surrounded by a perinephric abscess. In a fifth case there was no renal artery coming from the aorta.

In the case which has recently come under my notice the left kidney had been the seat of suppuration for some years, and had been converted into a large many-chambered pyonephrosis. All but a small part of it had been transformed into a mass of yellow adipose tissue with traces of irregular septa between the large lobules of fat. The only portion which was not thus transformed was in the front and upper section of the organ. Here there was a series of four or five small sacculi, separated by thick tough partitions and occupied by stinking pus or pus and urine. A sinus ran through this portion and also through the adipose mass into which the rest of the organ had been converted, and a second and larger sinus ran through the centre of the fatty mass. Both these sinuses are shown in the Figs. 5 A and B, and were the tracks occupied by two drainage-tubes which had traversed the kidney from a wound on the front of the abdomen to another in the loin. The drain-tubes had been introduced on July 8th, 1909, and the kidney was removed from the patient on Oct. 30th, 1909. As in July the kidney was known to be a large, many-chambered pyonephrotic tumour, we are supplied with definite data as to the maximum period within which this extensive transformation took place, though we cannot state precisely what was the minimum time it actually occupied.

In the third and fourth cases to which I have above referred there were fistulous tracks opening on the surface of the body and discharging pus, as there were in the case under my care.

I will now briefly relate the clinical history of the patient from whom I removed this fattily transformed kidney, because in addition to this interesting and rare change in the organ the case conveys instruction on at least three points connected with the surgical treatment of pyonephrosis.

A lady of miniature stature, now 39 years of age and the mother of four children, 16 years ago—namely, in 1893—met with an accident when between the fifth and sixth months of her second pregnancy. This accident occurred as she was crossing a room by falling between some loose boards in the floor, when her left leg and thigh passed through nearly up to her pelvis. No immediate serious ill consequence followed, and her baby was born in due course at full time. But on getting up after her confinement she complained of pain across her back at the level of her kidneys, and this pain continued to trouble her more or less persistently. Two other pregnancies were followed by the birth of two children at full time—one, her third child, in 1896, and the other, her fourth child, in 1898. In the interval between the third and fourth confinements—that is, between 13 years and 10½ years ago—she became very ill, pus appeared in her urine, and her family medical attendant told her she had a serious affection of her kidney for which she ought to have an operation, and that the sooner it was done the better. Two other medical men in Johannesburg, where she was living at the time, who were called in consultation agreed in this opinion. She, however, declined to consent to any operation in Africa. Throughout the following 8½ years she suffered attacks of pain in the region of the left kidney associated with sudden vomiting and the passage of large quantities of pus with her urine. Rigors attended many of the attacks. Hæmaturia had not been known to occur. In the summer of 1907 a swelling formed in the left side of the abdomen and liver, and in October of this year (1907) she at length consented to undergo an operation. At this time she was in England residing in the country in one of the Home Counties, and there the operation was performed by a local practitioner. It consisted of an incision over the prominent part of the swelling, along the left linea semilunaris; the kidney was incised, search made for a stone, and (as the patient and her friends confidently asserted they had been at the time informed) a portion of the kidney was removed. It would seem that the impression formed at this time was that the kidney was tuberculous. A large drain-tube was introduced and brought out at the abdominal wound. A fistula was established and gave exit to pus, but as the escape was frequently obstructed the fistulous opening was enlarged in February, 1908. Four months later, in June,

1908, an oblique incision 2½ inches long was made extending at nearly a right angle from the fistulous opening, and through this incision a flat and triangular-shaped calculus escaped. No improvement, however, followed, and she subsequently changed her residence to Kew, and called in Dr. G. J. Maguire of Kew Gardens to attend her.

On June 21st, 1909, the day I first saw her, the discharge from the fistula had been continuing for 1 year and 8 months, and the patient was reduced to the extremest state of emaciation and a condition of pallor amounting almost to clear transparency of skin. Rigors, high temperature, vomiting, and diarrhœa were frequent symptoms; and I quite agreed with Dr. Maguire that she had not long to live but that her life would quickly flicker out unless relief could be obtained by further surgical procedure. At the same time the risks of an operation in her very precarious state were by no means slight.

After removal to a nursing home in London I explored the kidney on July 8th, 1909, through an oblique lumbar incision. The kidney was found to be enlarged, pouched, and sacculated, but entire in its contour. Clearly no portion of the organ had ever been excised. It was freely incised, and sacculus after sacculus was laid open by cutting through tough thick septa. A quantity of foul urine and pus was evacuated. The fistulous opening in the front of the abdomen was enlarged and pared, and two large drainage-tubes were passed right through the kidney and made to emerge at both the abdominal and the lumbar wounds. Great improvement in health followed, and at the end of July (31st), as there was but little discharge coming away, an attempt was made to close the anterior opening and to drain the renal cavity by means of one tube introduced through the loin wound only. She returned to her home on August 5th much stronger and better in all respects, and there seemed promise of the discharge ceasing entirely and of the wounds closing. Our hopes were not realised, however, and therefore she came back to the surgical home, and on Oct. 30th, 1909, I performed nephrectomy through the lumbar incision, after excising the twelfth rib. I had expected to find great difficulty in separating the kidney from its bed after so prolonged a period of suppuration within it, but I was agreeably surprised at the easy way in which I was able to enucleate it. And this surprise was by no means diminished when I cut the organ open and found it had undergone the transformation I have already described.

On Nov. 3rd, 1909, the drainage-tube was finally discontinued. It was the first time for two years she had been without a drain-tube for a single day. On the 27th she returned home; in January, 1910, the wounds were quite healed, and now, in March, she is quite well. Those who had witnessed the precariousness of her condition in June, 1909, regarded her recovery as little less than a resurrection.

This case accentuates the teaching which I have frequently enforced before in this theatre and in the wards of our hospital and elsewhere, viz.:—

1. Pyonephrosis should be drained through a *lumbar* incision as soon as ever the diagnosis is established; and even before it is certain, from the evidence afforded by palpation, that the kidney is dilated and sacculated, an incision into it should be made when pyuria, with frequent exacerbations of symptoms, is present. Had the advice of the Johannesburg practitioners been acted upon this patient would have been spared years of ill-health and would probably have had her kidney saved.

2. The absolute necessity in *many-chambered* pyonephrosis to make sure that all the chambers or sacculi are opened into and drained.

3. The folly or worse of attempting to drain a suppurating kidney through an incision in front. Through the loin the route is simple and direct and the exit of the drain or drains is in the most dependent position.

4. When owing to the impossibility of keeping up a satisfactory drainage of all and each of the pouches or sacculi, or when the pyonephrosis is very advanced and old, nephrectomy is the only operation which offers a chance of cure. Had the patient's general condition permitted of it I should have performed nephrectomy in July, 1909, but it was not until after the general improvement which free drainage through the loin secured that the patient was in a fit state to undergo the major operation.

5. The knowledge afforded by this and other cases of the complete disappearance of renal secreting structure after prolonged irritation and suppuration teaches us how useless it is to leave within the body an organ affected with such old-standing disease. In cutting short the illness by nephrectomy we are but anticipating the complete cessation of function of the kidney by the progressive process of transformation into fat or fibrous tissue, which the organ will undergo if not removed.

I have published cases in proof of this statement; notably, a very striking and instructive one recorded in my work on "Diseases of the Kidney and Ureter" (vol. ii., p. 349), in which the kidney, after suppuration following injury, was converted into a small flat triangular fibrous mass and the ureter was in great part obliterated.

Arris and Gale Lecture

ON

THE PHYSIOLOGY OF THE HUMAN LABYRINTH.

Delivered before the Royal College of Surgeons of England on March 18th, 1910,

BY SYDNEY SCOTT, M.S., M.B. LOND., F.R.C.S. ENG.,

ASSISTANT AURAL SURGEON TO ST. BARTHOLOMEW'S HOSPITAL; SURGEON FOR DISEASES OF THE EAR AND THROAT TO THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.

GENERAL ANATOMY AND TOPOGRAPHY OF THE LABYRINTH.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—The labyrinth or internal ear in which the eighth nerve ends is a membranous structure situated in the petrous portion of the temporal bone. The cavity in which the membranous labyrinth lies is called the osseous labyrinth. It is lined by a delicate periosteum. The membranous labyrinth contains a fluid known as endolymph, and is partly surrounded by a fluid called perilymph. The bony labyrinth consists of three main parts—the three semicircular canals, the vestibule, and the cochlea. In the vestibule are the saccule anteriorly and the utricle posteriorly; the latter receives the opening of the three semicircular canals. The saccule communicates with the membranous duct, which is lodged in the bony cochlea. Each semicircular canal is set in a plane at right angles to the others. The external canal is horizontal; the other two are vertical—viz., the anterior or superior, and the posterior or inferior, which is also internal. Contrasting the two labyrinths, the horizontal canals occupy approximately the same plane. In relation to the topography of the head, the superior canal lies in a plane which, according to my measurements, is inclined at an angle of 37° to the coronal plane; the posterior canal is inclined at an angle of 37° to the sagittal plane. The superior canal on one side, therefore, forms an angle of 15° with the posterior canal on the opposite side.

MORPHOLOGICALLY—A DUAL ORGAN.

Evidence shows that the eighth cerebral nerve is composed of two portions; although blended in their course, they differ in their peripheral terminations, central connexions (compare Gordon Holmes), period of medullation, and functions. In some animals, according to Biehl,[1] e.g., the horse, and, more distinctly, the sheep—the two portions, the vestibular and the cochlear, are independent, and can be divided separately.

VESTIBULAR GANGLION.

The vestibular ganglion, first described by Scarpa about 1760, is situated in the internal auditory meatus, and is connected by an upper branch with the utricle and ampulla of the superior and external semi circular canals, and by a lower branch with the saccule and the posterior semicircular canal. Centrally, the fibres from the vestibular ganglion enter the medulla oblongata between the restiform body and the bulbo-spinal root of the fifth cerebral nerve, and are indirectly connected with the cerebellum.

[1] Beitrag zur Lehre von der Beziehung Zwischen Labyrinth un Auge, Arb. a.d. Neurol. Inst. a.d. Wien Univ., Band. xv., Teil 1, 1907.

COCHLEAR GANGLION.

The cochlear ganglion is situated in a spirally arranged space in the modiolus or central axis of the cochlea. Its peripheral fibres are distributed in the organ of Corti, and its central fibres run dorsal to the vestibular nerve towards the restiform body, over which most of them pass, toward the mid-brain, and not the cerebellum. (Cf. Gordon Holmes, Comparative Anatomy of the Nervus Acusticus, Transactions Royal Irish Academy, 1903, p. 140.)

DEVELOPMENT.

W. His, jun., is responsible for the view that the inferior branch of the vestibular nerve belongs to the cochlear nerve, which was physiologically doubtful, and which G. L. Streeter[2] has shown to be incorrect. Dr. John Cameron and Dr. William Milligan[3] have come to similar conclusions, after an embryological study of the otic vesicles and nerve histogenesis in vertebrates.

VESTIBULAR SYSTEM.

The intimate connexion of the vestibular nerve with the cerebellum has been spoken of recently by Dr. Risien Russell in his Lettsomian lectures. "The most important peripheral sense-organ from which the cerebellum receives afferent impressions is the labyrinth, and the path by which they are conducted is the vestibular nerve."[4]

EARLY EXPERIMENTAL RESEARCHES ON CEREBELLUM AND LABYRINTH.

It is not, therefore, irrelevant to very briefly allude to the experimental study of the cerebellum which eventually led to the discovery of certain previously unknown functions of the labyrinth. The earliest experiments on the cerebellum, according to Sherington, appear to have been by du Verney in 1697.[5] Du Verney's name is of particular interest to otologists, for I find he was an aural surgeon as well as an anatomist. His book, translated and published in London after his death, 1727, was the first special treatise on aural diseases in our language.[6] In 1822 came Flourens, whose life forms an era in the history of the labyrinth. It will be remembered that Flourens found that injury to the deep structures of the cerebellum produced marked disturbance of equilibrium. But he went further than others had done, for in 1828 he observed what was certainly at that time an astonishing fact, that precisely similar results were evoked by injury to the semicircular canals alone. It was years before the significance of this epoch-making revelation was properly appreciated. The notion that the internal ear served no other functions than that of audition was so deeply rooted that no one seems to have attempted to repeat these observations until long afterwards. For nearly 20 years Flourens continued his researches in experimental neurology. He found that division of one canal caused rotatory movements of the body, and that the axis of rotation was at right angles to the severed canal. He was led to observe that these motor disturbances, like those produced by injury to the cerebellum, were of the nature of coördination—one set of muscles contracting, while another set relaxed.[7]

FLOURENS'S DATA CONFIRMED.

I can only mention the names of a few of the earlier observers to investigate Flourens's data. In 1869 Löwenberg showed that the phenomena produced by dividing the semicircular canals of pigeons were not due to injury to the cerebellum as some had averred, for he found that the incoördinate movements could be set up by stimulating the ampullary nerve endings in the divided canals.

THE INFLUENCE OF THESE OBSERVATIONS ON MEDICAL OPINION.

It is interesting to try to ascertain how these discoveries first began to affect medical opinion. During the first 30 or 40 years which followed the announcement of Flourens's discovery, we find no reference to his work on the labyrinth in general medical or otological literature, until 1861, when Ménière first introduced the subject. Ménière, therefore, stands out prominently, because he was the first to realise the value of these results in experimental physiology when applied to clinical medicine. Before this time the symptoms, which are often spoken of as Ménière's, were believed to be due to a threatened cerebral apoplexy; and patients manifesting these symptoms were so treated, and treated rather desperately.

CHIEF PERIOD OF PHYSIOLOGICAL INVESTIGATION ON THE LABYRINTH.

There seems no doubt that the relationship which Ménière established between physiology and practical medicine led to and encouraged the more thorough investigations which were carried on after 1870. This period witnessed the master work of Mach and Breuer in Austria, and Cyon, who came from Russia to Paris. In this country important work was done by Crum-Brown in Edinburgh in 1872, and confirmatory observations were made a little later by Dr. Peter McBride[8] in Edinburgh, 1880, and by William James[9] of Harvard in America, 1882. Exhaustive researches of Mach, Breuer, and Cyon extended over several years, and have since been supplemented by many others, including especially J. C. Ewald in Germany, Stanislaus von Stein in Russia, and van Rossem in Holland. To these we must add the names of Lee, who investigated the labyrinth of cartilaginous fish, and of Karl Biehl, who has studied it in the horse and sheep.

CLINICAL PHYSIOLOGY.

Our knowledge of the functions of the labyrinth was advanced by experimental physiologists, and during the 40 years which followed Ménière's prediction hardly any progress can be claimed by clinical physiologists, except for Dr. Hughlings Jackson and one or two other contributors, including Schwabach, who described cases of vertigo and nystagmus associated with ear disease. In 1874 von Tröelstsch said: "The internal ear is completely removed from the direct operations of the physicians and surgeons," and so spoke of it in as few words as possible.

Real advance on the clinical side may be said to date from the stimulus produced by Jansen's paper giving an account of ten cases of operation upon the labyrinth in the human subject. This was in 1898 at the Otological Congress in Moscow. The possibilities awakened by Jansen's pioneer surgery of the labyrinth formed the great incentive to otologists to perfect the methods for diagnosing its diseases. The arduous work of those few who were engaged independently in clinical researches became recognised as of great practical importance and interest. In this country attention to the subject was first directed by Dr. Milligan, Mr. Whitehead, and by Mr. Lake. The way was prepared by Sir William Macewen and Mr. C. A. Ballance, to whom otology owes so much for the application to it of the principles of modern surgery. It was only natural that otologists should refer back to the important researches in experimental physiology carried out between 30 and 40 years ago, and amongst the first to appreciate the practical importance of this combined study of the physiological and clinical problems appear to have been Alexander and Bárány in Vienna. The latter's work especially has become well known to us owing to the papers by Guthrie,[10] Tweedie,[11] Pike,[12] McKenzie,[13] and others. Panse of Dresden (1902) also drew up a detailed guide for investigating the internal ear, which has received less attention in this country than it deserves.

MICROSCOPIC ANATOMY.[14]

In order to understand the mechanism of the labyrinth of which we shall now speak, it is necessary to examine the peripheral distribution of the vestibular nerve. We shall first direct attention to the ampullæ of the semicircular canals, which are the parts peculiarly sensitive to stimulation. As we know, each canal is supplied with a branch of the vestibular nerve. In each ampulla is a transverse crescentic septum, the free margin and surfaces of which are covered with ciliated epithelial cells. In suitable sections cut in paraffin we find one cilium for each cell. The cilium

---

[2] American Journal of Anatomy, vol. iv.
[3] Development of the Auditory Nerve in Vertebrates, Journal of Anatomy and Physiology, January, 1910.
[4] Brit. Med. Jour., Feb. 19th, 1910, and Transactions of the Medical Society of London, 1910.
[5] Philosophical Transactions, London, vol. xix., p. 226.
[6] Cf. William Wilde, Aural Surgery, 1853, p. 15.
[7] Cf. also Sherington, Horsley and Löwenthal, Proceedings of the Royal Society, 1896 and 1897.
[8] Journal of Anatomy and Physiology, vol. xvii., p. 211.
[9] The Sense of Dizziness in Deaf Mutes, the American Journal of Otology, vol. iv.
[10] Brain, 1906.
[11] Brit. Med. Jour., 1907.
[12] Ibid.
[13] Journal of Laryngology, &c., 1909.
[14] See Journal of Anatomy and Physiology, July, 1909 (illustrated with microphotographs).

is partly intra- and partly extra-cellular. The extracellular portion of the cilium is a fine, tapering filament, which in man measures nearly 0·04 millimetre in length (Schäfer gives the length 0·03 millimetre). The two portions of the cilium are in perfect continuity with each other. The intracellular portion is characterised by an ovoid expansion, which makes the total length of the cilium 0·064 millimetre. (I cannot find a similar appearance figured in the works of Gustav Retzius or of other anatomists.) The filaments of the ampullary nerve are traceable to this highly differentiated epithelium, where they end in beaded fibrillary network among the cells. The extracellular portions of the cilia project into the endolymph of the ampulla and are so slender that we can readily conceive how they sway to and fro in the slightest current set up in this fluid. We do not say such currents are normally produced, but it simplifies our discussion if at this stage we are permitted to assume this possibility.

EXPERIMENTAL PHYSIOLOGY—ANIMALS.

By opening the external horizontal canal in a pigeon or rabbit, and blowing through a capillary glass tube which was introduced into the canal, Cyon found nystagmus was evoked; moreover, he observed the character and rate of rhythm of the oscillation of the eyeball were the same as those which Purkinje had described in connexion with post-rotatory nystagmus half a century previously. Ewald repeated these experiments, using a compression and rarefaction syringe and taking the precaution to seal the canal behind the artificial opening. He was thus able to bring pressure to bear on the fluid in the ampullary end of the canal. He found that compression caused the eyeballs to deviate towards the contralateral side, and the nystagmus occurred when the eyes looked toward the ipso-lateral side. Rarefaction produced opposite movements—viz., deviation towards the ipsolateral side and nystagmus when the eyes turned toward the contralateral side. In other words, *the eyes deviated in the same direction as the current, if we may still assume that the current is produced.*

OBSERVATIONS IN THE HUMAN SUBJECT.

In human subjects affected with middle-ear suppuration we not infrequently meet with fistulous openings of the external semicircular canals similar to those artificially produced by Cyon and Ewald in animals. Hinsberg collected 198 examples of such fistulæ from literature, including 22 cases from his own practice, in 1902.[15] Two years ago Mr. West and I described 15 examples which we had met with. As a rule, such fistulæ are more often found only after the membranous labyrinth has become defunct owing to the fact that the symptoms produced by the process of disorganisation of the labyrinth are generally mistaken for some other affection. Occasionally we meet with the fistula while the functions of the membranous labyrinth are capable of direct excitation. During the last three years I have met with nine examples of this latter class of fistula.

LABYRINTHINE FISTULÆ—COMPRESSION PHENOMENA (*9 Cases*).

CASE 1.—A man with a vestibular fistula reeled and nearly fell when the tragus was pressed inwards so as to compress the air in the external auditory meatus. No nystagmus was sought for in this case.

CASES 2 AND 3.—Two women with vestibular fistulæ also reeled with vertigo and nearly fell when the meatus was compressed in a similar way. Violent nystagmus was observed, but its type was not analysed.

CASE 4.—A young man with an external canalicular fistula responded to meatal compression in a similar way. The nystagmus was too violent to allow of analysis being made.

CASE 5.—A boy with a canalicular fistula rotated circus-wise 90° to the contralateral side when pressure was applied to the fistula by means of a jet of water from a syringe. The movement was immediate, involuntary, and occurred when the head was erect.

CASE 6.—A young woman with an external canalicular fistula had giddiness and spontaneous nystagmus to the ipsolateral side. Compression intensified the nystagmus and the existing vertigo.

CASE 7.—An elderly woman had a cholesteatoma and fistula of one external canal which, owing to extensive bone destruction, was visible through the meatus. The slightest contact with a probe upon the fistula produced deviation of the eyes and rotation of the head towards the contralateral side, and horizontal nystagmus when the eyes were attentively turned towards the ipsolateral side. Very gentle meatal compression produced precisely the same results. When the pressure was increased the nystagmus became mixed in type, rotatory as well as horizontal, and it was then impossible to analyse, nor was it possible after repeated trials to aver that rarefaction of the meatus caused the contrary effect to ensue.

CASES 8 AND 9.—The patients were boys with traumatic fistulæ, but no additional datum was obtained.

[15] Zeitschrift für Ohrenheilkunde, vol. xl.

Thus, perhaps in an imperfect way, we are able to show that what Cyon and Ewald found in lower animals is true also in the human subject.

Hughlings Jackson's Case.

Dr. Hughlings Jackson gives an admirable description of what seems to have been a similar condition in a woman, aged 49 years, with mastoid disease due to middle-ear suppuration. Compression upon the meatus caused deviation of the eyes to the contralateral side. Nystagmus with the rapid movement towards the ipsolateral side, and also some rotatory nystagmus.[16]

In another contribution Dr. Jackson described two other cases of ocular movement during a paroxysm of auditory vertigo.[17] He quotes a somewhat similar case of Schwabach,[18] and also of Clarence Blake.[19]

Some years later Charles Kipp described cases of transient bilateral horizontal nystagmus which occurred with purulent inflammation of the middle ear.[20] But in none of these cases, so far as I can gather, was a fistula of the labyrinth actually identified, although Dr. Jackson naturally supposed that the phenomena were the result of direct mechanical stimulation of one or other of the semicircular canals.

Rud. Panse (1902)[21] however, mentions two cases in which meatal compression evoked deviation of the eyes and rotation of the head to the contralateral side, followed by horizontal nystagmus to the ipsolateral side. These observations tally with my own and with Ewald's experiments.

CALORIC REFLEXES.

In the "seventies" Breuer showed that similar phenomena were evoked by the effect of changes of temperature of the outer wall of the labyrinth. Breuer's observations formed the basis of the caloric test introduced to otology by Bárány.

Experiment.—If the ear of a normal person with intact labyrinth and, for preference, with a perforated drum is gently irrigated with tepid water the sensation of vertigo can be produced after a short latent period. The objective phenomena which accompany the state of vertigo depend upon the position of the head. When the head is turned face downwards and the left ear alone is irrigated, directly the vertiginous state begins irrigation is discontinued, the patient is directed to try to stand steady, keeping the face down. This he will not be able to do on account of strong, forced movements which in a typical case cause the head, and generally the trunk and limbs, to rotate circus-wise towards the contralateral side. An examination of the eyes while the head is bowed down reveals the presence of horizontal nystagmus, most evident when the eyes are directed towards the ipsolateral side. In other words, we recognise the same set of phenomena which has been induced by mechanical compression of a fistula of the horizontal canal. The legitimate explanation is that in accordance with the laws of heat by cooling the outer wall of the internal ear, convection currents are set up in the endolymph, which pass from the horizontal canal downwards (because the face is turned downwards) towards the utricle. As before mentioned, Ewald succeeded in producing the contrary reflex movements by rarefaction—i.e., presumably—by inducing currents to flow from the utricle into the external semicircular canal. We can simulate these reversed currents by using hot water instead of cold. As we should expect, when the head is in the face-downwards position, the forced rotation of the head and eyes produced by hot water irrigation is towards the ipsolateral side, nystagmus on fixation being horizontal towards the contralateral side. Thus, as regards the horizontal canal, the hypotheses concerning compression and convection currents are in harmony.

This may be stated in the form of a law: *The deviation of the head and eyes is in the same direction as the current in the endolymph, and the nystagmus is in the opposite direction.*

THE SUPERIOR SEMICIRCULAR CANAL.

Fistulæ of the superior semicircular canal leading into the accessory cavities of the tympanum are very rare, and no opportunities have occurred for watching the effect of mechanical compression or rarefaction in this canal in the

[16] For a full description see Transactions of the Ophthalmological Society of the United Kingdom, vol. iii., p. 201 (1883).
[17] Brain, vol. ii., 1879-80.
[18] Zeitschrift für Prakt. Med., No. 11, 1878.
[19] Archives of Ophthalmology and Otology, vol. vii., No. 1, p. 113.
[20] Transactions of the American Otological Society, 1888.
[21] Archives of Otology (Tr.), vol. xxxi., p. 480.

human subject. Data for consideration can, however, be obtained by use of hot and cold water irrigation. We examine the superior canal with the head erect. Cool water irrigation now causes pleurothotonos, instead of circus rotation. The lateral inclination of the head and trunk is very evident as soon as the feeling of vertigo comes on if the patient attempts to stand with feet together and eyes closed. The direction of flexion is toward the ipso-lateral side and the nystagmus, which is rotatory in type, is contra-rotatory.[22]

Hot water irrigation also produces pleurothotonos, but to the contralateral side, with ipso-lateral nystagmus. The direction of the nystagmus is reversed by inverting the head.

The law of deviation is thus confirmed: *The direction of the reflex forced movements of the head, eyes, and trunk is the same as the current in the endolymph.*

POSTERIOR CANALS.

When we come to investigate the posterior semicircular canals we are confronted with the disadvantage that mechanical methods of compression cannot be applied, as fistulæ of this canal have not been met with clinically in the human subject. Moreover, the deep-seated position of this canal precludes any effect from the use of convection currents.

POST-ROTATORY PHENOMENA.

Our difficulties respecting the posterior canals can be overcome by the application of passive rotation, and we shall therefore first refer to a reinvestigation of Purkinje's post-rotatory phenomena. The results are dependent upon the position of the head. When an individual is rotated uniformly in a horizontal plane, with the head in an erect position, certain forced movements follow sudden change in the rate of movement. If the angle of velocity is not less than about 80° per second, sudden cessation produces a negative acceleration. The forced movements produced are best made evident when the patient, with normal labyrinth, attempts to stand up with feet together and eyes closed. In a typical instance it will be noticed that it is necessary to protect the patient from falling, but where space permits definite circus movements are performed. In other words, the patient continues to rotate actively circus-wise in the same direction as that in which he has been passively rotated. If the eyes are examined for nystagmus it will be found that horizontal nystagmus is present when the eyes are turned towards the direction opposite to that of the passive rotation.

These phenomena are in harmony with those observed as the result of compression, rarefaction, and caloric tests, and they are explicable by the inertia laws on fluid currents.

To test the value of post-rotatory phenomena by applying the method described to the superior canals the head must be bowed with face downwards, or may be extended so that the face is directed upwards. In either position the two superior canals are symmetrically placed as regards the plane of rotation. (If we know from other data that there is only one intact labyrinth the head should be rotated with the chin 30° toward the ipso-lateral shoulder, in addition to the face-down or face-up position when we wish to demonstrate the activity of the remaining labyrinth.)

When the rotation is suddenly stopped, as in the previous experiment, and the patient attempts to stand, pleurothotonos is produced instead of circus movements. Rotatory nystagmus is also evident and its direction is opposite to that of lateral flexion.

The results of comparative experimental physiology would lead us to expect that the posterior canals are concerned with rotation movements in a vertical plane.

Experiment.—A normal individual is uniformly rotated as before about a vertical axis, but with the head placed on one side so that the sagittal plane of the head coincides with the plane of rotation. This really represents turning head over heels. On coming to sudden rest the patient is directed to stand with feet together. Assistance will be required owing to the production of powerful opisthotonos, or emprosthotonos, according to the relative direction of passive movement. When the direction of the passive rotation of the head about its transverse axis is towards the occiput, opisthotonos and upward deviation of the eyes are produced. Conversely, emprosthotonos and deviation of the eyes downwards result from passive rotation in the opposite direction—i.e., when the crown of the head moves forwards instead of backwards around the transverse cranial axis. These powerful motor reflexes, opisthotonos and emprosthotonos, are explicable on the assumption that currents are produced in the ampullæ of the posterior canals similar to those described in the external and superior canals. The view that posterior canals are mainly, at all events, concerned with movements of the eyeball in the sagittal plane is also supported by observations made upon a patient some years ago during an operation on the labyrinth. Direct pressure with a seeker upon the ampulla of the posterior canal caused the eyeballs to move, first, slightly upwards and then slowly downwards. All these reflexes are absent if both labyrinths have been removed previously.[23] In the present state of our knowledge, therefore, it seems justifiable to suppose that we can investigate the posterior canal by passive rotation, the superior canals by passive rotation and by calorific methods, and the external canals by rotation, calorific methods, and sometimes also by mechanical compression too.[24]

Mach,[25] with great authority, showed that it was a mathematical error to suppose that the radius of the arc of rotation influenced the inertia in the semicircular canal. I confess to be one of those who were prepared to allow for some influence due to variations in the radius of the arc of rotation, and it seemed in a measure surprising to find clinically that the intensity of the physiological reaction varied only with angular acceleration, but not with tangential speed.[26]

CURRENTS IN ENDOLYMPH.

The conclusions to be drawn from the foregoing data are in no way vitiated by difficulties in the conception of currents through such small canals. Some variation in diameter of the canals is allowed among different species in the animal kingdom, as a study of Dr. Gray's beautiful photographs of the labyrinths of animals reveals. The production of currents must be dependent upon positive and negative pressures in successive portions of the endolymph. If the gradation of pressure involves the endolymph throughout the semicircular canal one of two things must happen: the shape of the wall of the canal must be altered or there is a flow of fluid until uniformity of pressure occurs; whether there is a flow throughout the canal or not does not affect the possibility of movement of endolymph in the ampulla alone. If normal stimulation of the ampullary nerves is due to temporary change of pressure it must be because this change of pressure has produced a movement in the endolymph. It is only a stage further to suppose that this is accompanied by a movement of the extremely delicate fibrillæ of the epithelial cells of the ampulla.

NORMAL AND EXCESSIVE STIMULI.

The controversies on this part of our subject do not appear to me to allow for the distinction between normal stimuli, which regulate normal deviation, and excessive stimuli, which produce forced movements and nystagmus. I wish to side myself, therefore, with those who believe the evidence in favour of the production of currents, and the only explanatory qualification which seems called for is that the actual movement of endolymph may be relatively very slight without negation of the hypothesis. In no case is it necessary to imagine the current flowing rapidly through the semicircular canals, although it is necessary to admit movement of endolymph in the ampulla itself. There is one other point of importance to which reference must be made.

PRINCIPAL AND SUBORDINATE FUNCTION.

The physiological reactions differ quantitatively according to the direction of flexion of the cilia in a given ampulla. In the case of the external ampulla currents from the canal towards the utricle produce stronger reflex movements than currents in the contrary direction. On a previous occasion when I went fully into this subject I ventured to think that

[22] The terms "ipso-rotatory" and "contra-rotatory" nystagmus apply to the direction of the rapid movement of the upper meridian of the globe of the eye rotating about the antero-posterior axis of the eyeball.

[23] Cf. Mr. Lake's case, which he courteously allowed me to examine, Proceedings of the Royal Society of Medicine, Otological Section, 1908; Dr. Gibson and Mr. Lake, Ablation of Both Vestibules.

[24] We have noted that E. P. Lyon failed to produce forced movements in the planes of the posterior and superior canals in dog-fish by direct stimulation of these canals with the same certainty as could be obtained in the case of the horizontal canal. Cf. Loeb, Comparative Physiology of the Brain, and Lyon, A Contribution to the Comparative Physiology of Compensatory Motions, American Journal of Physiology, vol. iii., 1900.

[25] Grundlinien der Lehre von den Bewegungsempfindungen, 1875.

[26] Proceedings of the Royal Society of Medicine, Otological Section, p. 41, 1909.

this undoubted difference was dependent upon a physical difference of the relationship of the canal to the ampulla according to the direction of flow.[27] But such physical argument was based upon consideration of the external canal only, and a further study of the problem last year confirmed me that the conclusion is refuted by considering the superior canal. For in cases in which one labyrinth has been extirpated the duration of the post-rotatory nystagmus is longer after rotation in one direction than after rotation in the opposite direction. Currents from the extenal canal to the utricle and from the utricle to the superior canal produce nystagmus of longer duration than can be produced by currents reverse in direction (under otherwise equal conditions).

GALVANISM.

Stimulation of the labyrinth by means of galvanism has been carried out in the lower animals by innumerable experimenters, and it has been shown that the application of the current direct to the labyrinth or to the ampullary nerves, or the eighth nerve as a whole, may cause forced movements and nystagmus. In the human subject similar phenomena, varying in degree according to idiosyncrasy, can be induced by placing one electrode against the tragus and the other in a neutral position. If the patient with normal labyrinth is examined in a standing position, with feet together, or with one foot in front of the other, and eyes closed an imperceptible current is sometimes sufficient to invoke strong involuntary movement. I have found 2 milliampères in normal subjects sometimes sufficient. Usually a current of 3 to 5 milliampères continued for a minute or two will cause lateral swaying of the head and trunk, and in a typical case pleurothotonos is produced. *Stronger currents are necessary to evoke nystagmus* and in this case the patient must be seated, for unpleasant sensations may be produced. The deflexion of the head is towards the anode and from the cathode. The reaction with the anode is stronger than the reaction with the cathode. *The anode pulls harder than the cathode pushes.*

CONCLUSIONS FROM A STUDY OF GALVANIC STIMULATION.

I have found that the method forms a useful supplementary test in some cases, but cannot be employed to take the place of caloric and rotatory tests in all cases. Before any inferences can be drawn it is absolutely necessary to test the effect of anode and cathode separately on each side. As a rule, weak and quite painless currents of less than 5 or 6 milliampères, if continued for a few minutes, evoked forced movements when the labyrinth and its central connexions are normal. It is often impossible to display nystagmus without a strong and painful current of more than 10 or even 15 milliampères in normal subjects.

According to Bárány, galvanic nystagmus is evoked first, while deviation of the body is produced later. (Presumably his patients were always seated.) It will be seen from my experience that the reverse was noticed, if we gradually increase the current and watch the effect of the current on an individual who stands with feet together, as described above. This is also in agreement with Lemaitre and Halphen,[28] and also with Buys and Henebert.[29]

ABLATION OF ONE LABYRINTH.

The extirpation of one labyrinth in an animal produces an immediate effect upon (1) the attitude of the resting state, and (2) the character of the animal's movements in space. These effects in the course of time become less noticeable, and an animal that survives long enough may acquire such compensation that it may pass muster with its fellows without any noticeable defect. The same is true in man. The immediate effect of removing one labyrinth in frogs was studied by Hasse, 1873, who noticed inclination of the head to one side. Schiff, 1891, noticed that when the frog jumped the contralateral limb was partly abducted, and Ewald, 1892, noticed that when the frog was swimming, the body on the side operated upon was lower in the water. He also noticed that the contralateral forelimb was extended —i.e., unilateral ablation of the labyrinth in the frog causes ipsolateral flexion and contralateral extension of the head and limbs. Van Rossem[30] has found the same in tortoises. Ewald, 1892, and Girard, 1892, investigated the muscular tone and found weakness in the limbs on the ipsolateral side. Emmanuel described changes in the muscle curves which are in accord with Ewald's views.

Certain apparently special functions of the vestibular labyrinth have been particularly studied by Ewald[31] and von Stein. Sir Victor Horsley drew attention to an altered attitude during a recent discussion on the subject of vertigo, which led me to watch for the effect in human subjects. Last year Dr. Gordon Wilson, late professor of anatomy, University of Chicago, kindly gave me a photograph of a dog whose right labyrinth he had removed. The photograph showed not only lateral flexion and rotation of the head, but also what might pass unnoticed, abduction of the contralateral limbs.

Schiff investigated the effect of passive rotation on frogs before and after unilateral and bilateral ablation of the labyrinth. His method was to rotate the animal on a disc at a uniform velocity, starting from rest, which, acting as a positive acceleration, produced a reactionary movement of the frog and caused it to turn its head in the contrary direction. During the rotation the frog would remain motionless in its new position, but when the disc was suddenly stopped a reactionary movement was set up by the negative acceleration, which resulted in post-rotatory movement in the direction of the previously rotating disc. To the initial movement or reaction I propose to apply the term "alpha reaction," and to the post-rotatory reaction the term "omega reaction." In the normal frog the alpha reaction is equal to the omega reaction, estimated by the number of degrees to which the animal moves on the disc.[32] These movements do not occur when both labyrinths have been removed, therefore they cannot be due to inertia of the whole body.

UNILATERAL ABLATION.

When the rotation is made to the ipsolateral side the alpha reaction is much weaker than the omega reaction, which is exaggerated. When the frog is rotated to the contralateral side the alpha reaction is much greater than the omega reaction. Ewald found that in normal pigeons the alpha reaction was equal to the omega reaction, but after one labyrinth had been removed the reactions were unequal, like those of the one-labyrinth frog.

Coming to our own experiments, measurement of the alpha and omega reactions under like conditions in the human subject is impossible to carry out satisfactorily with hand-rotation chairs, which though useful for general clinical purposes after some experience, do not possess the mathematical accuracy required for records of permanent value.

As far as it is possible to estimate with hand-rotated apparatus, I am disposed to think that the alpha and omega reactions before and after ablation are similar to those described in animals, differing in degree.

In a normal child on hands and knees on the rotating table the alpha reaction was about 20° and the omega reaction 20° (angular acceleration 90° per second). In two others similar results were obtained. It is the usual experience to find that after unilateral ablation the omega reaction produced by rotation towards the ipsolateral side with the head erect is greater than the omega reaction produced by rotation in the opposite direction.

ATTITUDE.

Since Sir Victor Horsley drew attention to the subject[33] I have noticed the head to be very slightly deviated towards the side of the lesion (I can recall seeing cases some years ago); the angle of deviation from the perpendicular plane was in one recent case 15°. It was also noticed that there was some lateral deflection of the head and trunk towards the same side—*in other words, slight pleurothotonos towards the side of the lesion.*

Besides an altered attitude of the head, there is a change in the posture of the limbs: the patient may stand with feet wider apart. Dr. Risien Russell has mentioned this to be generally observable in cerebellar lesions. This wider base is probably secured not by equal abduction of the limbs, but

---

[27] Ibid.

[28] Nystagmus et Oreille Interne, Annales des Maladies de l'Oreille et du Larynx, tome xxxiv., p. 700, 1908.

[29] Archives Internationales de Laryngologie, d'Otologie, et de Rhinologie, 1909.

[30] Onderzockingen gedaan in het Physiologisch Laboratorium der Utrechtshe Hoogeschool, p. 151.

[31] Phys. Untersuchungen über das Endorgan des Nervus octavus, p. 185.

[32] Schiff and Ewald.

[33] Proceedings of the Royal Society of Medicine, 1909.

by *forced abduction of the contralateral limbs* (cf. Dr. Wilson's dog).

VON STEIN'S TESTS.

After disorganisation of one labyrinth patients sometimes have a sense of weakness in the muscles on the ipsolateral side. This is not always noticed and may soon pass off, but the patient may not be able to maintain the upright position when standing on the ipsolateral leg, although he may be steady on the contralateral leg alone. For the clinical value of this observation, which we have practised in varying ways for some five years, we are indebted to von Stein, who has also shown (and the observation can be easily confirmed) that hopping on the ipsolateral limb is generally impossible in recent infection or disorganisation of the labyrinth, although it may still be possible on the contralateral limb.[34]

HYPOTONUS, DYSDIADOKOKINESIA (BABINSKI), &c.

I have never been able to detect weakness in the flexor to the forearm by the finger-grip test, nor have I been able to obtain the brachial bicipital reaction in labyrinthine infections, described by Stewart and Holmes in cerebellar lesions.[35] I have not found any interference with rapid alternating pronation and supination of the wrist in disorders of the labyrinth. In contrast with cerebellar tumours[36] it is interesting to observe that two cases in which suppuration extended from the labyrinth into the cerebellum showed no such dysdiadokokinesia, nor was this sign present in a third case of cerebellar abscess in which the labyrinth was normal.

Before leaving the vestibular system I should like to draw attention to the further researches of van Rossem, which have led him to calculate the mean reaction time of rotation consciousness. This he estimates to be 0·8 second. If compared with the mean reaction time of other sensations we shall find it rather slow: visual, 0·195; tactile, 0·145; muscular contraction, 0·151; thermal, 0·162; taste, 0·502; and sound, 0·150.[37]

Van Rossem also worked out the minimal perceptible acceleration it was possible to detect. The mean minimal perceptible angular acceleration was 1·36° per second. As far as seemed reasonable, I have attempted in this discourse to restrict the matter to the results of actual experiment and to clinical observations, believing that by adhering to these methods more reliable data may in time accrue. I have also omitted considerations of the action of the utricle and saccule which are probably concerned with acceleration in straight lines, forwards and backwards, upwards and downwards, and possibly sideways.

COCHLEAR SYSTEM.

Ever since the eighteenth century it has been recognised that a fully developed spiral cochlea exists only in mammals; its homologue, the lagena of birds, is comparatively a simple tube and only slightly curved. In reptiles it is quite rudimentary, absent in some amphibians and fishes.

The tympanum with a columella and fenestra rotunda and Eustachian tube are simple in birds and in those reptiles in which they exist; there is *no* tympanum in snakes—e.g., yellow cobra and hoary snake of South Africa. As regards the organ of Corti, there are no rods in the organ in birds, so that they cannot be indispensable structures.[38] The membrana basilaris on which the organ of Corti rests is said to vary considerably in different animals.

In the past it has been assumed—e.g., 1867, John Marshall, "Human and Comparative Physiology"—that practically all animals possess the power of hearing. This is a preconceived premiss which has no scientific foundation and represents a prejudice which dies hard. An amusing account of the supposed hearing power of the garden snail is quoted because it is so extraordinary in the "Cambridge Natural History" (see article on Molluscs). After reading this I kept a number of garden snails under close observation, and when they emerged from their shells they were exposed to the influence of Bezold's continuous tone series of instruments, to which they invariably displayed supreme indifference. Not one of the 16 snails at any time during the two months they were kept ever showed any attraction for, or repulsion from, or stationary attention to, the loudest sounds the instruments were capable of emitting. They were tested with every tone in the series, from 16 to 50,000 double vibrations per second. The instrument was applied to the shell, to the board on which they were crawling, and as close to the body or antennæ as was possible without actual contact. These molluscs are excessively sensitive to touch. Contact with a fine hair will cause instant retraction.

The presence of weak formalin on wool within an inch or so of the body causes the snail to instantly withdraw. Sounds of pure and mixed tones had no such effect. The so-called otocyst in molluscs is much better regarded as a stato-cyst and should be so named. The value of hearing in most fishes, amphibians, and many reptiles is extremely doubtful.[39] It has been assumed rather than proved to exist, except in a few species. Moreover, the tactile sense is so acute in some of these animals that they are possibly, indeed probably, affected by tactual vibrations in the water which surrounds them, or of the ground on which they lie at full length. Such tactual sensations may be set up by vibrations which accompany loud sounds of relatively long wavelengths.

Some animals, for instance the common fowl, are peculiarly sensitive to tones of a certain pitch, as one can readily prove with a Galton whistle. On the authority of Dr. Plimmer, pathologist to the Zoological Society, a bull-frog was indifferent to the noise of a pistol fired close to it, even its respiratory rhythm being unchanged, yet it is conceivable that it is capable of hearing a monotone of a certain pitch or the croaking of its mates.

Attempts to make investigations into the *modus operandi* of the cochlea must be founded upon an accurate anatomical basis, both normal and pathological, and should be considered side by side with physiological experiments in lower animals, clinical phenomena, and physical laws. It is merely so much guess work to deal with other than ascertained data. Our present knowledge, however, is insufficient to substantiate any full and satisfactory explanation of the function of the cochlea, and we must seek the most acceptable working hypothesis as a basis for further investigations. The problem is reduced to the stage when we wish to ascertain whether sound waves produce a movement of the hairs in the organ of Corti, and if so what is the character of the movement of these hairs and by what direct means is such movement accomplished.

It is thought possible that the motion produced by sound waves on the labyrinth reaches the cells through the fluid of the labyrinth, either through motions in the basilar membrane, or by motion of the membrana tectoria, which impinges upon the free ends of the cilia of the hair-cells. By means of the mechanism of the stapedial foot-plate and the formation of the membrana secundaria which closes the fenestra rotunda, it will be understood that any to-and-fro movement of the stapes, due to compression and rarefaction waves of sound, will cause synchronous movements of the membrana secundaria through the intervention of the perilymph.

Those who have studied the cochlea from the physical aspect conclude that the motion in the perilymph can be no other than mass motion.[40] Such mass movement of perilymph must affect the pressure in the endolymph, possibly in the form of compression and rarefaction waves; otherwise we cannot possibly explain the mechanism of the sound stimulus. We cannot imagine an effectual resistance to changes in pressure in the perilymph from the membrane of Reissner, and although it is by no means clear in what form sound waves traverse the cochlea we must admit a mechanical motion of some kind is produced. But we cannot ignore the fact that sound-waves fall upon the membrana secundaria synchronously with those which reach the stapes—e.g., after removal of the tympanic membrane.

It is assumed that either the basilar or tectorial membrane vibrates; which should be regarded as the essential vibrator is a matter of controversy. If these membranes vibrate, do they do so in part, or throughout their whole length, and to

[34] Von Stein: Die Lehren von den Funktionen der einzelnen Theile des Ohrlabyrinths, German translation by von Krzywicki, Jena, 1894, quoted by Panse, Archives of Otology, 1902; also Eagleton, Archives of Otology, 1907, and Schafer, 1900.

[35] Quoted by Risien Russell, loc. cit.

[36] Cf. Stewart and Holmes and Risien Russell.

[37] Cf. Schäfer: Physiology, 1900.

[38] Cf. Dr. Urban Pritchard and others.

[39] I have found that rattlesnakes, Indian pythons, South African cobra take no notice of the loudest tones of the three Edelmann whistles (which encompass the upper half of the scale of sound). Green lizards respond to certain tones, frogs do not.

[40] Weber. Von Helmholtz, p. 106. Cf. Sir Thomas Wrightson: On the Impulses of Compound Sound Waves and their Mechanical Transmission through the Ear, 1907.

all sounds, or only to some? Or do they only vibrate in a particular part for a particular sound? Von Helmholtz propounded and elaborated the theory that each portion of the basilar membrane was set into reciprocal vibration by tones of one and only one pitch. Normally, the human subject is capable of hearing about 11½ octaves—i.e., tones of from 16 double vibrations per second up to tones of nearly 50,000 vibrations per second.

Von Helmholtz showed how it might be possible for high tones to cause sympathetic vibration of the basilar membrane at its basal extremity, where the membrane is narrowest radially, and that low tones could produce vibration of the basilar membrane in the apex of the cochlea where it is widest and most lax. Helmholtz distinguished musical notes from noises, and supposed the former were appreciated by the cochlear and the latter by the vestibular apparatus; we have, however, clearer views of the functions of the vestibular nerve than had been admitted in Helmholtz's time; moreover, Albert Gray [41] has successfully shown that noise is not fundamentally different from musical tones, but that the cochlea may appreciate noise just as it does pure tones. Albert Gray's modification of Helmholtz's theory to include the appreciation of noises by the cochlea has been so ably expounded that we must refer to it as the Gray-Helmholtz theory. Essentially it is the application of the principle of sympathetic vibration. If the Gray-Helmholtz theory had maintained that the whole of the basilar membrane vibrates for each kind of sound wave it would not have been possible to explain by it how certain deaf individuals have partial defects in the range of hearing. We know that notes of low pitch are obstructed more easily than notes of high pitch, but how is it that certain deaf persons can hear notes low in the bass and perhaps high in the treble, but are unable to hear even the loudest notes in the middle of the normal auditory field? I have met with a number of such cases in tabes dorsalis and other diseases. An explanation is provided by Helmholtz's theory.

One of the objections raised to the hypothesis as it stands is embryological. As Shambaugh has pointed out,[42] we should suppose that in a special sense organ derived from epiblastic structures the important rôle of stimulating the "hair-cells" would be by a structure of epithelial origin—e.g., the tectorial membrane—and not by one of mesoblastic origin, like the basilar membrane.

An important anatomical objection to the basilar membrane theory is also lodged by Shambaugh, and is also noticed independently by Ter Kuile and Hardesty [43]—viz., that at the lower end of the basal coil of the cochlea in the pig the basilar membrane frequently cannot be found where the organ of Corti is perfectly developed, and also that the organ of Corti, here seen rests upon a solid bony plate which bridges between the lamina spiralis ossea and the outer wall of the cochlea.

Ter Kuile and Hardesty describe the inner pillar of Corti as resting upon the labium tympanicum in the basal coil. The significance of these observations cannot be disregarded; on the other hand, it would be necessary to ascertain whether the animal in which this condition was found showed signs of appreciating as high tones as other animals of the same species in which a basilar membrane for the basal extremity of the organ of Corti was present.

TECTORIAL MEMBRANE.

The possibility of the tectorial membrane vibrating in response to sound waves seems to have been first suggested by Rinne in 1865. It also occurred to Rutherford and to Voltolini, who built up an important hypothesis explaining its action (1885–86). Ewald and Max Meyer suggested modifications in the hypothesis. It was supposed that the basal end of the membrana tectoria would be capable of responding to the impulses produced by high-pitched tones, while succeeding tones, lower in the scale, might respond to larger and larger areas in descending the scale, until the deepest tones would cause vibration of the membrane from one end to the other. Such an explanation fails to account for the ability to perceive separately all different sounds which act upon the ear simultaneously; nor does it account for the presence of defects in hearing known as tone islands and tone gaps in the auditory field. Shambaugh maintains that the principle of sympathetic resonance is applicable to the membrana tectoria, which gradually increases in breadth from base to apex, after the manner of the basilar membrane.

Comparison of the Breadths of the Basilar and Tectorial Membranes.

Basilar membrane.		Observer.	Tectorial membrane.		Observer.
Base.	Apex.		Base.	Apex.	
mm.	mm.		mm.	mm.	
0·21 (man).	0·36	Retzius.	0·12 (man).	0·24	Von Ebner.
0·2 ,,	0·3	Kolmer.	0·08 ,,	0·240	Kishi.
0·041	0·495	Hensen.	0·038 (pig).	0·432	Shambaugh.
			0·046 ,,	0·220	Hardesty.

That there is a difference in the breadth of these membranes passing from base to apex is not difficult to show in histological sections, but it is a matter of extreme difficulty to be sure that measurements made are perfectly radial at the base and at the apex too. Unless special methods are adopted to prevent distortion and contraction of the membrana tectoria, measurements of this structure are of no value, and for this reason I have not added my own figures from specimens passed, e.g., through alcohol, which causes shrinkage of the membrana tectoria.

Hardesty's work on the tectorial membrane is the most praiseworthy. This observer succeeded in isolating the membrane from the cochlea in pigs. Dissections under saline fluid were carried out with the aid of the microscope. He thinks the tectorial membrane is much more qualified to act as a vibrator than the basilar membrane on account of its evident elasticity, transverse flexibility, sensitive to agitation in fluids in which it is examined, and lastly because it is attached along one instead of along both sides.

As a working hypothesis, Shambaugh's application of the Gray-Helmholtz principle of sympathetic resonance to the tectorial membrane is, in the present state of our knowledge, the most satisfactory explanation: possibly we may combine these theories.

Many useless controversies seem to be occasioned by retention of the term "telephone theory," which is surely a misnomer. Every sound, simple or complex, will produce a distinctive effect on the cochlea. All modern theories, call them by what names we choose, are based upon the assumption that the analysis occurs in the "periphery" before it can be appreciated centrally. Those who claim that the membrane vibrates as a whole agree that it must vibrate differently for different sounds—"sound patterns." [44] This is peripheral analysis, as Shambaugh rightly, I think, maintains.

[The lecture was illustrated by lantern slides of microphotographs, charts, and diagrams.]

[41] Proceedings of the British Association for the Advancement of Science, 1899.

[42] The Membrana Tectoria and Tone Perception, Archives of Otology, vol. xxxvii., No. 6, p. 458.

[43] American Journal of Anatomy, vol. viii., 1908.

[44] Waller, "Human Physiology," 1891.

THE TRINIDAD ASSOCIATION FOR THE PREVENTION AND TREATMENT OF TUBERCULOSIS.—The fifth annual report of this association shows an alarmingly high death-rate from tuberculosis amongst the inhabitants of Port-of-Spain. The total death-rate is 26·8 per 1000, while deaths from tuberculous diseases figure at 4·75. The association has a gratuitous dispensary for tuberculous patients, which is worked on the lines of the out-patient department of the Victoria Hospital for Consumption in Edinburgh. The average number of attendances each month was 113 during the last year. Information regarding the prevention of the disease is disseminated by the association, and at the recent Trinidad Agricultural Exhibition a cottage built on hygenic principles was exhibited, together with a replica of one of the many insanitary hovels which are to be found all over the colony. A sanatorium is urgently needed in Trinidad, and the association is urging the Government to build one. The report also draws attention to the necessity of having compulsory notification of cases of tuberculosis.

THE EAR ORNAMENTS OF THE MASAI AND THE NATIVES OF KIKUYU.

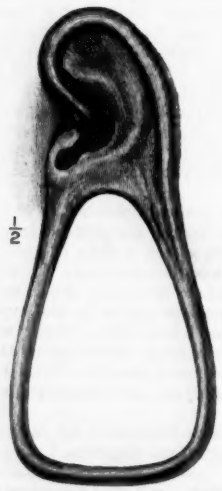
BY JOHN BLAND-SUTTON, F.R.C.S. ENG.,
SURGEON TO THE MIDDLESEX HOSPITAL, ETC.

HUMAN vanity assumes many forms and one of its grotesque expressions is furnished by a study of the ear ornaments of the Masai and the Wa-Kikuyu in British East Africa. In a recent visit which I made to this, the latest addition to Greater Britain, in company with my friend and colleague Dr. Comyns Berkeley, I was able to study an extraordinary phase of fashion and deformity.

The various contrivances employed for adorning the ears among mankind may be set down in two classes—ear-studs and ear-rings. As a rule, ear-studs are inserted into the helix and ear-rings into the lobe. In some instances the lobe is converted into a loop for the retention of the ornament. In many civilised countries ear-rings are worn in the lobe, and this style of decoration is usually confined to women. Among the two tribes of natives concerned in this article ornaments are worn in the ear by men and women.

When the boys and girls have passed through their "initiation ceremonies," which means circumcision for one sex and clitoridectomy for the other, the lobe of the ear is pierced and a thin spigot of wood inserted into the hole. Gradually this hole is enlarged by the introduction of thicker pieces of wood until it is large enough to receive a stone with a groove running round it. These stones vary in size, but the ultimate result is the transformation of the lobe into a rounded cord-like loop (Fig. 1), which in the black

FIG. 1.



The ear of Masai; the lobe is dilated until it resembles a ring of indiarubber.

ears of these men and women looks like a ring of indiarubber. Among the Masai the full size is attained when the cutaneous ring of one side will meet its fellow over the crown of the head. Hollis states that the largest stone ear-plug in existence weighs 2 pounds 14 ounces. This stone is represented in Fig. 2 and *in situ* in Fig. 3. It would be thought that the ears of the Masai must be larger than those of other men and women, but this is not the case; indeed, Captain S. L. Hinde, who lived among these people in an official capacity for many months, states that the ear of the Masai when left to itself is small and of good shape.

An examination of some of these enormous ring-like lobes shows that the tissue forming the loop undergoes hypertrophy. When the lobe has been stretched to its utmost capacity it becomes the receptacle of many strange things, such as plugs of wood, rings of horn or of ebony; occasionally a can or a gallipot will be found in it. The ear-lobe of the women is also dilated, and they wear a curious ear-ring, as well as a necklace made of iron wire. These coils of iron wire resemble the firework known as a Catherine-wheel (Fig. 4). Such ear ornaments, known as *'surutya*, are fastened to the lobe my means of a strap of leather with a kauri shell fixed to it.

In addition to the lobe, the helix also is adorned with ornaments of various kinds. In some the ornaments are thrust into holes made in the rim of the ear, or the concha may be slit below the rim of the helix. The helix is perhaps more freely used by the Wa-Kikuyu than by the Masai.

A superficial examination is sufficient to indicate that these ornamented ears had some social or tribal significance. This

FIG. 2.

A stone ball, weighing 2 pounds 14 ounces, used by the Masai for enlarging the opening in the lobe of the ear. (British Museum.)

is indeed the case. Hollis has collected some valuable information on this matter. The following sentences from his valuable book are instructive:—The reason why women wear necklaces of iron and ear-rings ('surutya) is in order that it shall be known that they are married. Women's ear-rings are of great consequence, for no woman ventures to leave them off during the husband's lifetime. Should she happen to take them off whilst doing her work, she would, on the approach of her husband run

FIG. 3.

The ear of a Masai with the stone *in situ*.

into the hut and resume them, so that he should not see her without them. If the husband went away from home she would not venture to take her ear-rings off for fear other men should see her without them; they would tell her that her husband would hate her.

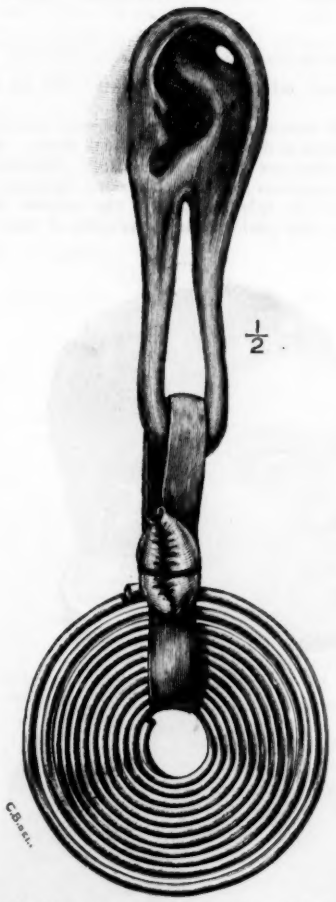
Boys and girls insert blocks of wood into their ear;

warriors and old men wear chain ear-rings. No Masai elder may wear the ear-rings called 'surutya unless he has children who have been circumcised and become warriors. When the father dies the whole family mourns for him; the widows lay aside their ear-rings, necklaces, and beads for a whole year.

Thus it is clear that the ear ornaments are full of significance as representing the age and social state of males and females among the Masai. It doubtless obtains in other tribes, especially among the closely allied tribe, the Nandi.

The men and women of the Kikuyu country devote much care to the decoration of their ears, and like the Masai attach ornaments to the helix as well as to the lobe, but the styles of ear-studs and ear-rings of the Wa-Kikuyu differ in some particular from those of their neighbours, the Masai.

FIG. 4.



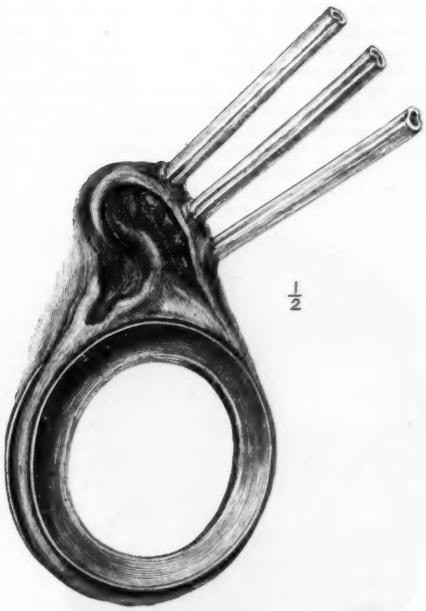
The ear of a Masai woman wearing the ear-ring 'surutya. The strap is of leather and the ornament on the strap is a kaurie shell.

The boys when they are nearly ripe for circumcision have the rims of their ears pierced in three places, and through the holes three, and occasionally five, reeds are introduced; these reeds project from the rim of the helix, but lie in the same plane as the ear. (Fig. 5.)

In the case of women five holes are made in the helix. In its simplest form the ornament consists of a piece of grass with a bead of gum at the base to prevent it slipping out. Sometimes the ends of the three reeds are fitted into a piece of leather which lies in the depression under the rim of the helix. Sometimes the reeds are adorned with coloured beads.

The Wa-Kikuyu also distend the lobe of the ear like the Masai and fit into it a cylinder of wood (Fig. 7), a can, or a gallipot (Fig. 8). Objects of this kind are usually seen in the lobules of men. The women prefer to fill the holes in their ears with large rings made of small beads threaded on

FIG. 5.



The ear of a Kikuyu man with an ear-ring and helix-reeds.

thin wire. These bead rings are not only used in the large hole made in the lobe, but the women often have a long slit made through the concha, and rings of beads are fitted into it. (Fig. 6.)

FIG. 6.

A woman of Kikuyu with her ears full of bead-rings. Many of the rings pass through a hole in the lobe, a few thread a slit in the helix.

The women strive hard to get as many rings adjusted to these artificial openings as possible; on one occasion I counted 44 rings in the pinna of a woman; the majority were in the lobe-loop, but a dozen occupied a slit in the concha. Although one of these bead-rings is light, 30 or 40 hang heavy in the ear; in order to keep them comfortably in position a band, ornamented with beads, is fastened to the rings and carried across the crown of the head. Some of the men, when the ear ornament is very heavy, wear a head-band to keep the ear from being dragged down by it.

FIG. 7.

A native of Kikuyu with a wooden cylinder fitted into the lobe of the ear.

The ring which the Wa-Kikuyu insert into the expanded lobe has a groove around its circumference so that the thick rubber-like cord, which represents the lobe of the ear after dilatation, lies in this groove like the tyre on the wheel of a motor-car. Some of these circular bodies are solid discs with designs on their flat surfaces made with small beads. Although there can be no doubt that there is much latitude in the designs and styles of ear ornaments among the Wa-Kikuyu, and that fashions change from time to time, there is great probability that there are social meanings in these various decorations, especially when we learn that the large plugs of the kind represented in Fig. 7 are made from the wood of certain specified trees.

The Wa-Kikuyu are constantly seen in Nairobi, and it is quite common to see attached to the helix of youths and men a flat tab in shape like a leaf which appears to be made of some white metal, like lead, and bearing a mark. It is said they are beaten out of Maria Theresa dollars. These coins were at one time current in the countries along the Nile (Schweinfurth). Some of the boys wear a large safety pin in the helix. This pin is a very useful tool, for the natives employ it to remove "jiggers" from their feet.

In many of the ear ornaments worn by the Wa-Kikuyu iron and chain are used. The iron is obtained from ore found in the district and smelted by their own smiths. These men make iron articles required by the tribes, such as wire, chains, rings, spears, swords, hoes, and the like. The Kikuyu blacksmiths are specially good at making chain which is used exclusively for the purpose of personal ornament.

The iron articles of the Masai are made by the Ndorobo. The smiths are disdained by these "shepherd-warriors" and they live apart from the tribe; nor will the Masai give their daughters in marriage with the blacksmiths, although they allow their wives to be decorated with the ornaments made by the smiths. Since the European occupation of Masailand there has been very little smelting, because it is easy to obtain trade iron and wire by barter, purchase, or theft, especially by the tribes living near the Uganda Railway.

It would be reasonably anticipated, in view of the great trouble, inconvenience, and, no doubt, some physical suffering involved in transforming the lobe of the ear into a rubber-like cord of tissue capable of surrounding a cylindrical jar, or a disc of wood, with a diameter of three or four inches, that these deformed ears are regarded by their owners with pride and their neighbours with envy. This is the case. To break one of these rings of tissue is a great offence. In all countries, civilised and uncivilised, rival beauties are liable to quarrel and even fight desperately; in such encounters each combatant endeavours to ruin the beauty of her rival. Scratching furrows in the cheeks is a common form of revenge. Shakespeare, in his description of the scene in which Margaret, Queen to Henry VI., boxes the ears of Eleanor Cobham, Duchess of Gloucester, makes the angry duchess shriek:—

> "Could I come near your beauty with my nails,
> I'd set my ten commandments in your face."

This is a neat reference to the marks left by ten finger nails.

The Masai women when they "fall out" snatch at each other's ear loops and endeavour to break them. A friend of mine, who practises surgery in Nairobi, informs me that on several occasions he has succeeded in re-uniting ear-loops broken in this way, and the natives have men among them who perform plastic surgery of this kind very successfully.

FIG. 8.

A native of Kikuyu with a gallipot as an ear ornament.

As a result of the British occupation of the Protectorate many Swahili, Masai, and Wa-Kikuyu have been trained as police (Askari) and soldiers (The King's African Rifles). Ear ornaments under such conditions are not wanted, but in order to preserve the ear-loop it is hooked over the helix where it is safe from harm. As soon as the Askari (native policeman) has finished his term of service, usually about three years, he returns to his tribe, abandons uniform, resumes ear-rings, spear, knobkerry (club), and skin; becoming once more an unclothed native, he smears himself with greasy clay, and joins in the village dance.

The love of personal adornment is very great among these people. Schillings tells of a Masai boy who had been many times to Germany and had mastered the language, including the Berlin jargon. On becoming a man he decided to return

to his people, and was subsequently seen by a European who knew him, covered with clay and his hair in long plaits dripping with grease, in company with a Masai in full war dress.

The mutilation of ears is by no means confined to human beings. The ears of cattle, sheep, and donkeys are marked for identification purposes. The ear-marks are of two kinds—branding and slitting. Among the Masai there is for each clan and family a principal mark, and all the cattle belonging to the various members of a family are branded in a special way. There are also small marks by which the actual owner can be recognised. This is also true of the special methods of slitting ears. Some of the ear-slitting designs are curious; on meeting Somali traders with a herd of cattle I always found it amusing to examine the odd patterns cut in the ears of the oxen.

In connexion with this matter it should be borne in mind that in the early days of the Israelites, if a manservant wished to serve his master for ever, a hole was bored through his ear "with an aul" (Exodus xxi. 6). Ear-marking is a very old custom.

Brook-street, W.

A FURTHER STUDY OF SPINAL ANÆSTHESIA IN CHILDREN AND INFANTS.

BY H. TYRRELL GRAY, M.A., M.C. CANTAB., F.R.C.S. ENG.,

CASUALTY OFFICER (LATE RESIDENT MEDICAL SUPERINTENDENT), HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, LONDON.

III.—THIRD SERIES OF 100 CASES.

SINCE the publication of my first two papers[1] dealing with this subject, I have employed this method of anæsthesia on another hundred occasions, and again venture to bring forward the results which have been obtained in the third series. I have once more to express my indebtedness to the surgical staff at the Hospital for Sick Children for their readiness to afford me every opportunity to pursue this study, and I have been personally responsible for the administration of the anæsthetic and for the keeping of careful records in every case reported.

In the present series the use of spinal anæsthesia has been more restricted to emergency and severe operations, and it has been employed less often in routine surgical work, for it was felt that, since the value of the method had been appreciated in the surgery of children, a further study of the principles involved, and increased efforts at improvement, should be made, as far as possible, in those cases where its use is specially indicated.

The same principles have been adhered to in this as in the second series of cases—namely, the localisation of the action of the drug to a small area of the spinal nerve roots by the employment of gravity and the use of a fluid whose diffusibility is reduced to a minimum.

In my former papers[2] it was pointed out that three factors were responsible for the distribution of the solution introduced into the spinal theca: (1) diffusion; (2) gravity; and (3) force of injection. For spinal anæsthesia to be of real value it is necessary for all these processes to be well under control in order that the action of the stovaine may be restricted as nearly as possible to the nerve roots supplying the operation area, and also that, by keeping the solution in the spinal theca, absorption of the anæsthetic agent may be reduced to a minimum. For it has been pointed out that absorption of salts takes place in the spinal theca only to a very limited extent, but that, in the neighbourhood of the cranial venous sinuses, osmosis and filtration play a most important part in promoting the rapid absorption of salts introduced into the cranio-vertebral cavity.

Many of the unpleasant complications met with were shown to be consequent, to a very large extent, not only on the changes of blood pressure induced by *osmosis* (and to less extent *filtration*) between the cranio-vertebral cavity and the cranial venous sinuses, but also on the resulting absorption of the toxic agent into the general circulation and the effects produced therefrom. It was further demonstrated that of the three factors influencing the distribution of stovaine within the spinal theca, only the second and third—viz., *gravity* and *force of injection*—were under the direct control of the surgeon; while the first—*diffusion*—played a most important rôle in the causation of the unpleasant sequelæ just referred to, but was not capable of being controlled at all. In my second series efforts were directed towards the limitation of absorption and a more accurate control over the distribution of the injected fluid by the employment of gravity alone, after reducing the factor of diffusion to a minimum. This was effected by using an indiffusible vehicle—dextrin—the percentage of which can be increased or diminished at will without materially influencing the freezing point of the solution; thus it was found possible to confine the action of the stovaine to the spinal theca to a very much greater extent, and also to delay the absorption of the drug into the general circulation for a much longer period. There was consequently a marked improvement in the results obtained in the second series of cases, with this disadvantage, however—*that increased indiffusibility of the solution employed was found to diminish proportionately the duration of the anæsthesia.* For details I would refer to my second paper.[3]

In the present series efforts have been directed towards the maintenance of the improvements obtained in the second series with, at the same time, a prolongation of the duration of anæsthesia. The degree of success obtained is shown in the following statistical review:—

TABLE I.—*Nature of Operations Performed.*

Operations on the trunk:—	
Abdominal, various	8 cases.
Appendicectomy, acute	3 ,,
,, *au froid*	2 ,,
Colectomy (partial)	1 ,,
Cystoscopy	2 ,,
Ectopia vesicæ (vesico-intestinal anastomosis)	1 ,,
Fæcal fistula	2 ,,
Inguinal hernia, hydrocele, &c.	40 ,,
Intussusception	8 ,,
Mesenteric cyst (resection, anastomosis)	1 ,,
Necrosis of ilium	1 ,,
Retroperitoneal sarcoma (exploration)	1 ,,
Undescended testis	3 ,,
Vesical calculus	1 ,,
	74 ,,
Operations on the extremities:—	
Acute osteomyelitis (femur)	1 cases.
Amputation (thigh)	2 ,,
Excision of hip-joint	1 ,,
Excision of knee-joint	1 ,,
Fracture of femur	4 ,,
Fracture of bones of leg	2 ,,
Whitman's operation (talipes calcaneus)	1 ,,
Unclassified	10 ,,
	22 ,,
Failures	4 ,,
Total	100 ,,

In Table I. is given a list of the various operations performed, and it will be seen that these are of a more severe and serious nature than in the first two series. Many of the abdominal operations were in very young children or infants, and were of such a severe and exhausting nature that, in all probability, they could not have been successfully performed under general anæsthesia. In addition to the routine cases of appendicectomy and intussusception, special mention may be made of the following cases:—

1. Resection of part of the iliac and the pelvic colon with lateral anastomosis, in a case of congenital dilatation of the colon associated with recurrent volvulus, in a boy aged 2 years and 7 months. The operation lasted 1 hour and 10 minutes; the child was extremely comfortable throughout and showed no evidence of shock.

2. Anastomosis of part of the bladder and the ureters with the pelvic colon for ectopia vesicæ in a boy aged 5 years. This operation involved a considerable amount of tedious dissection, and the abdominal cavity was exposed for over 1¾ hours. Three injections (9 cgr. stovaine) were given, and at the conclusion of the operation the boy was a little pale and exhausted, and showed some

[1] THE LANCET, Sept. 25th (p. 913) and Oct. 2nd (p. 991), 1909.
[2] Loc. cit.
[3] THE LANCET, Oct. 2nd, 1909.

evidence of stovaine absorption, as indicated by drowsiness, pallor, and two small vomits; his pulse, however, was strong and regular, and his general condition was excellent in view of the severity of the procedure in so young a subject.

3. Two cases of fæcal fistula into the small intestine, the cure of which, in both instances, demanded a severe operation. In one of these patients (a child aged 5 years) an extensive resection and lateral anastomosis of small intestine, together with closure of the blind ends, occupied over 1¾ hours, and the progress of the case was extremely satisfactory.

4. A case of multilocular mesenteric cyst of the great omentum and transverse mesocolon, completely filling the abdomen and extending into the pelvis of a child aged 1 year and 8 months. The removal of this cyst, which had become acutely congested, involved the resection of about 4 inches of the transverse colon with lateral anastomosis, and at no time were there any symptoms of shock.

5. A case of intussusception in which resection and anastomosis was performed on a child aged 7 months, details of which have recently been reported by Fairbank and Vickers.[4] Instances might be multiplied where the employment of spinal anæsthesia has rendered possible the hopeful undertaking of operations which, under general anæsthesia, had hitherto been regarded in a most serious light, so great is the diminution of the shock sustained.

A glance at the list of operations on the extremities will suffice to show that many of these were also of a severe nature and of a class usually attended with a considerable amount of shock in the case of children. This series of cases shows clearly that, as far as the factor of shock is concerned, the surgeon can devote his whole attention to the operation without the distraction of this additional anxiety, which is often so prominent under general anæsthesia.

Four failures (4 per cent.) are reported in this series:—

1. An infant 12 hours old. This was a case of imperforate anus, and I was anxious to ascertain the degree of difficulty in submitting an infant of such small size to spinal anæsthesia. I was not able to get the needle into the spinal theca.

2. In one case the needles were found to be much blunted, and this, as experience has shown, is not at all an uncommon cause of failure.

3. In the remaining two cases the puncture was apparently perfect, no blood was seen, and a free flow of cerebro-spinal fluid resulted in each instance. I am unable to find any reason for the failures in these two children.

In view of these facts I think failures in routine work may be stated at 2 per cent.

If Table III. be referred to it will be seen that general anæsthesia was employed on 7 occasions: (1) 4 of these cases were the failures just reported; (2) in 2 cases the anæsthesia induced was not high enough for the required operation; and (3) on one occasion a whiff of chloroform (for under a minute) was administered for suture of the skin in an operation which had lasted over 1¾ hours.

General anæsthesia was therefore substituted in 6 per cent. of cases, and this figure could have been reduced still further by the administration of a second injection; this will often be attended with success where the first injection has proved unsatisfactory.

I have to report 1 death under anæsthesia, and I am particularly anxious to call attention to the details of this case in view of the various reports which have been published on insufficient information. Mention of this accident (my 254th case) was not made in the previous reports as they had already gone to press.

A boy, aged about 1 year and 4 months, was admitted for a very large tumour in the left side of the abdomen extending well into the left flank and encroaching on the thoracic viscera. The abdomen was enormously distended and the thoracic contents were markedly displaced upwards. So great were the pain and respiratory difficulty that sleep was impossible, and the child was kept under small doses of morphia for the three days immediately preceding operation. Exploration was decided on with the object of relieving, if possible, the distressing condition, and the surgeon, Mr. G. E. Waugh, decided on operating under spinal anæsthesia, as he considered death was practically certain under general anæsthesia. An injection of morphia (1-20th grain) was given immediately previous to operation. Owing to the size and situation of the tumour it was essential to induce paralysis to the level of the third or fourth dorsal segment, and the usual technique of administration was adhered to. Respiratory embarrassment was apparent after about four minutes; shortly after this breathing ceased before the commencement of the operation and could not be restored. In addition to the usual methods of re-animation the spinal theca was flushed out with a strong solution of bicarbonate of soda, but without success.

At the necropsy both lungs were found completely collapsed and a pneumothorax was present on both sides, a condition which was not capable of satisfactory explanation. In addition, the left side of the diaphragm was extensively infiltrated with malignant new growth extending into the left pleura; there were several nodules on the under surface of the right side of the diaphragm and metastatic deposits in various other regions. The growth was not a renal, but a retroperitoneal, sarcoma involving the kidney, pancreas, &c.

There are, as experience has shown, *two real dangers* in administering a spinal anæsthetic to cases where marked abdominal distension is a prominent feature: 1. The danger of respiratory embarrassment if it is necessary to paralyse any of the intercostal muscles. For this reason, as has been previously remarked,[5] in such cases the anæsthesia should be regulated to the lowest level compatible with the operation to be performed. 2. There is the additional difficulty if the abdomen is very large, of arching the back of the patient sufficiently to regulate the height of the paralysis with accuracy.

It should always be remembered that the usual tendency is for the paralysis to result at a rather higher level than that intended, and, therefore, in cases like the one just recorded it is wise to aim at a somewhat lower level of paralysis than that which is actually required. This difficulty was noted quite early in my experience, and I was fully alive to it in the present instance.

The results of this series of cases again bear out the value of spinal anæsthesia in the surgery of children, though the method is naturally not without attendant disadvantages. It now remains to show what measure of success has attended efforts to minimise stovaine absorption and other minor sequelæ and complications, without endangering the practical value of the method, by the employment of solutions of varying composition. The composition of the various fluids used in this series is given in Table II. Mr. W. Peck, chemist to the Hospital for Sick Children, has again prepared all the solutions employed.

TABLE II.—*Composition of Fluids Employed.*

—	Dextrin.	Stovaine.	Suprarenin or adrenalin borate.	Saline or water to 100.	Novocaine.	Strychnine hydrochloride.	Magnesium sulphate.	Hydrochloric acid.
D.	4 %	4 %	Adrenalin borate 0·005 %	Saline.	—	—	—	—
D1.	5 %	3·5 %	Suprarenin 0·005 %	,,	—	—	—	—
D2.	6 %	3 %	,,	,,	—	—	—	—
D3.	6 %	3 %	Suprarenin 0·0075 %	,,	—	—	—	—
A1.	6 %	3 %	—	,,	—	—	—	—
C.	2 %	5 %	—	,,	—	—	—	0·5 %
G.	4 %	—	—	Water.	5 %	0·0125 %	0·5 %	—

The beneficial effect of dextrin as a colloid vehicle was demonstrated in my former paper, both in that it prevents to a large extent faintness due to diffusion and to consequent cerebral anæmia, and also in that it minimises and delays the absorption of the anæsthetic agent into the general circulation by keeping it almost entirely in the spinal theca by the position of the body. Dextrin has, therefore, been a constituent of all the fluids employed. It was, however, shown that the duration of the anæsthesia varied inversely with the indiffusibility of the fluid, and therefore efforts to increase the length of time of the paralysis have been made by adding the adrenal derivatives to the solution.

[4] THE LANCET, Feb. 5th, 1910, p. 364.

[5] Loc. cit.

TABLE III.—*Showing the Effects of Employing Dextrin-Stovaine Solutions in Varying Proportions.*

I.	Details of administration, time, dose, &c.							Relation of dose to duration.			Complications and sequelæ.							
	No. of cases	General anæsthesia.	Average dose.	Average age.	Average time.	Longest time.	Shortest time.	Dose administered.	No. of administrations.	Average time.	Vomited during operation.	Retched during operation.	Vomited, &c., after operation.	"Respiratory" pallor, &c.	Toxic pallor, sweating, &c.	Total pallor.	Headache.
D.	19	3 cases = 15·7%	3·7/5 c.c. = 2·96 cgm. stovaine.	4 yrs. 7 mo.	58 min.	1½ hr.	35 min.	2½/5 & 3/5 c.c.	4	47 min.	1 = 6·25%	4 = 25%	7 = 43·75%	2 = 12·5%	6 (mild) = 37·5%	8 = 50%	3 = 18·75%
								4/5 & 5/5 c.c.	9	63 min.	75%						
D1.	12	0	4/5 c.c. = 2·8 cgm. stovaine.	3 yrs. 11 mo.	1 hr.	1½ hr.	40 min.	3/5 & 4/5 c.c.	10	64 min.	1 = 8·3%	6 = 50%	2 = 16·6%	4 = 33·3%	0	4 = 33·3%	1 = 8·3%
								5/5 c.c.	3	48 min.*	(5 abdominal) 74·9%						
D2.	32	2 cases = 6·2%	3·8/5 c.c. = 2·28 cgm. stovaine.	4 yrs. 4 mo.	56 min.	1½ hr.	40 min. †	2/5, 3/5, & 3½/5 c.c.	5	57 min.	‡4 = 12·5% (6·25%)	3 = 9·3%	§6 = 18·7% (12·5%)	8 = 25%	§1 = 3·1%	‖9 = 28·1%	1 = 3·1%
								4/5 c.c.	12	55 min.	40·5% (28%)						
								5/5 c.c.	3	60 min.							
D3	26	2 cases = 7·6%	4·9/5 c.c. = 2·94 cgm. stovaine.	5 yrs. 4 mo.	56 min.	1½ hr.	45 min. ¶	3½/5 & 4/5 c.c.	3	53 min.	2 = 8·3%	3 = 12·5%	2 = 8·3%	3 = 12·5%	1 = 4·1%	4 = 16·6%	1 = 4·1%
								5/5 c.c.	15	56 min.	29·1%						
								6/5 c.c.	2	62 min.							
A1.	3	0	3·6/5 c.c. = 2·19 cgm. stovaine.	2 yrs. 8 mo.	43 min.	50 min.	35 min.	3/5 c.c.	1	45 min.	0	0	0	2 = 66·6%	0	2 = 66·6%	0
								4/5 c.c.	2	42 min.							
C.	4	0	3·2/5 c.c. = 3·2 cgm. stovaine.	3 yrs. 5 mo.	46 min.	55 min.	40 min.	3/5 c.c.	2 **	50 min.	1 = 25%	1 = 25%	0	4 = 100%	0	4 = 100%	0
								4/5 c.c.	1 ††	40 min.	50%						
G. (novocaine).	4	0	3/5 c.c. = 3 cgm. novo-caine.	3 yrs. 4 mo.	56 min.	1½ hr.	20 min.				0	0	1 = 25%	1 = 25%	‡‡3 = 75%	4 = 100%	0
								No value.			25%						

* Two consecutive injections on one child for one operation counted as two cases. † Child, 10 years and 11 months old, had small injection of 4/5 cubic centimetre. ‡ In two cases vomits were certainly due to anæsthesia. The third case had three consecutive injections; operation 1 hour 55 minutes (see §). In the fourth case vomiting, ? due to dragging on stomach in reduction of intussusception. § Ectopia vesicæ; operation 1 hour 55 minutes; vesico-intestinal anastomosis (see Tables I. and IV.). Second case joint sulphured; child very ill. ‖ All abdominal cases except two herniæ. Five of the abdominal cases were either acute or very severe. ¶ One case 35 minutes excluded, since anæsthesia was not complete. ** Under 2 years. †† 11 years. ‡‡ Extreme toxæmia; two cases were markedly cyanosed also.

If Table III. be now referred to, the comparison of the results of varying the proportion and nature of these ingredients will be found tabulated. It will be seen that novocaine and strychnine were tried on four cases, but with such unsatisfactory results that no further trial was made of this fluid.

Now in the whole series there was only one case in which vomiting was a prominent feature. In all the other cases where vomiting is reported the act amounted to one or two efforts, with the usual result that one or two drachms of fluid were brought up. The attack rarely lasted more than 30 seconds and only amounted to an unpleasantness of no significance. All these vomits have been entered under "vomiting" in the tables.

Nine cases (or 9 per cent.) vomited during the operation. In some of these (as shown in the notes to Table III.) the phenomenon could not be attributed to the anæsthesia alone; while in others repeated injections, for very long anæsthesia in prolonged operations, gave time for the commencement of the "delayed absorption" of the stovaine, and one or two small vomits resulted. Several factors would appear to influence the onset of this symptom.

(*a*) In the first place, the *psychical factor* must be recognised. Evidence in support of this is to be found in the fact that 2 out of 28 children of two years or under vomited during operation (7 per cent.). Both of these children, however, were operated on for intussusception, and on these occasions vomiting was probably induced to a large extent by traction on the stomach during reduction; certainly this seems to have been the explanation in one case, for it is not unusual for the stomach to be distended under spinal anæsthesia. There was, therefore, no case of this age where vomiting could be attributed to the anæsthesia alone.

The remaining cases, 7 in number, were all over 5 years. There were 41 children in the series over 5 years, and the percentage of cases at this age which vomited during operation is consequently 17. It is clear, therefore, that age is an important factor, and the figures adduced support to some extent the view that vomiting is, partly at any rate, psychical in origin. Again, in favour of this opinion is the fact that with many of the older children who complained of nausea, vomiting could be largely checked by an effort of will; some children complained of nausea (actual vomiting occurred in one or two isolated cases in the first two series) after the hypodermic puncture or immediately after the intradural injection, before the onset of any paralysis or the possibility of any stovaine absorption, while others complained that the smell of the theatre made them feel sick.

(*b*) Another factor in the causation of vomiting is the extent of the paralysis induced. When the intercostal muscles are paralysed to any extent (as in operations above the umbilicus) the diminished amplitude of respirations is compensated for by over-action of the diaphragm which presses upon the distended stomach and induces momentary retching. If food is present in the stomach, or if the patient has been fed during the operation, these contents will be returned; otherwise the attack rapidly subsides as the subject becomes accustomed to the new condition of affairs. Table IV., when read horizontally, shows the variations in

TABLE IV.—*Showing a Comparison of the Various Solutions Employed in Similar Cases, &c.*

—	Abdominal (chronic).	Intussusception.	Acute appendicitis.	Acute abdominal (various).	Trunk (ordinary).	Extremities (severe).	Extremities (ordinary).	Total symptoms.
	T.S.	T.S.	T.S.	T.S.	T.S.	T.S.	T.S.	
D.	2 cases. V., 0; R., 1; R.P., 0; T., 0 } 1 = 50%	—	1 case. V., 0; R., 1; R.P., 0; T., 0 } 1 = 100%	—	9 cases. V., 1; R., 1; R.P., 7; T., 0 } 7 = 77·7%	4 cases. V., 0; R., 1; R.P., 2; T., 0 } 2 = 50%	1 case. V., 0; R., 0; R.P., 0; T., 0 } 0	55%
D1.	1 case.* V., 0; R., 1; R.P., 1; T., 0 } 1 = 100%	3 cases. V., 0; R., 3; R.P., 0; T., 0 } 3 = 100%	1 case. V., 0; R., 0; R.P., 0; T., 0 } 0	1 case. V., 0; R., 1; R.P., 0; T., 0 } 1 = 100%	4 cases. V., 0; R., 0; R.P., 2; T., 0 } 2 = 50%	2 cases. †V., 1; R., 0; R.P., 0; T., 0 } 1 = 50%	—	66%
D2.	7 cases. ‡V., 1; R., 1; R.P., 3; T., 1 } 4 = 57%	5 cases. §V., ? 2; R., 0; R.P., 3; T., 0 } 3 = 60%	1 case. V., 0; R., 0; R.P., 0; T., 0 } 0	—	8 cases. V., 0; R., 1; R.P., 2; T., 0 } 2 = 25%	9 cases. V., 1; R., 1; R.P., 0; T., 0 } 2 = 22%	—	32%
D3	4 cases. V., 0; R., 1; R.P., 0; T., 0 } 1 = 25%	—	—	—	16 cases. V., 0; R., 2; ‖R.P., 2; T., 0 } 4 = 25%	1 case. V., 1; R., 0; R.P., 1; T., 0 } 1 = 100%	3 cases. V., 1; R., 0; R.P., 0; T., 1 } 1 = 33%	45%
A1.	—	1 case. ¶V., 0; R., 0; R.P., 1; T., 0 } 1 = 100%	—	—	2 cases. **V., 0; R., 0; R.P., 2; T., 0 } 2 = 100%	—	—	100%
C.	—	—	—	—	3 cases. V., 0; R., 1; R.P., 3; T., 0 } 3 = 100%	1 case. V., 1; R., 0; R.P., 1; T., 0 } 1 = 100%	—	100%
G.	—	—	—	—	4 cases. V., 0; R., 0; R.P., 1; T., 3 } 4 = 100%	—	—	100%

V. = Vomits during operation. R. = Retching during operation. R.P. = "Respiratory" or temporary pallor. T. = Toxæmia. T.S. = Total symptoms.

* Very severe radical cure of fæcal fistula. † Pyæmia. Child very ill; unconscious. ‡ (1) Case with three injections. Operation 1 hour 55 minutes (see § Table III.). (2) Case of resection. Fæcal fistula. Operation 1½ hours. § (1)? Not due to stovaine. (2) Traction on stomach. ‖ One case of very high paralysis. ¶ Resection; anastomosis; two injections. ** Both high paralyses.

such complications with the extent of the paralysis when the same solution is employed, and gives support to the above statements. When read vertically the value of the different fluids, when used on similar cases, is indicated; this will be referred to later.

(*c*) Again, there is a certain degree of fall in the general blood pressure consequent on the flaccid paralysis over the area involved and the resulting tendency to venous stasis. I do not think this is a factor of great importance, but it certainly must be considered as a possible accessory causation.

(*d*) Finally, stovaine poisoning, from absorption of the drug into the general circulation, is all important.

Now the first factor can be much modified by the treatment of the child. The person appointed to look after the patient should be one known to him, or at least skilful in management of children. This is of great importance, and considerable differences in results are apparent under different management. Further, curiously, vomiting during operation is more frequent in boys than girls in the proportion of 8 to 1 (the proportion of males to females in the whole series was as 3 to 1), and it would seem that special care should be taken in the management of boys. Children who are very ill require little management at all.

The second factor is more or less dependent on the height of the paralysis and the severity of the operation, as shown in Table IV. Vomiting due to this can be prevented to a very large extent by the preparation of the patient; but when present it is insignificant, of short duration, and of no great disadvantage either to patient or to surgeon. The attack commences about 10 to 15 minutes after the injection, can be anticipated, and measures taken to prevent any obstacle to the course of the operation.

As regards the effect of the changes in blood pressure, these can again be influenced by the raised pelvis position, the administration of saline solution, and, in urgent cases if necessary, by bandaging the limbs.

Of far greater importance is the question of toxic symptoms from stovaine absorption and poisoning, and it is towards the abolition of these that attention has been specially directed; when present, these may occasionally be quite alarming, even in routine cases, and they cannot be anticipated as far as present knowledge goes. The symptoms of stovaine poisoning from absorption have, in this series, been reduced to a minimum, as may be seen by consulting Table III.

It will be evident that solution G (containing novocaine and strychnine, see Table II.) was the most unsatisfactory combination employed, and its use was soon discontinued. Solutions A1 and C were not employed in many operations as it was found they did not materially increase the duration of anæsthesia, and so were of no special advantage. In the remaining cases, embracing nearly all the series, dextrin-stovaine solution was combined with adrenal derivatives (D, D1, D2, and D3). These have given much greater satisfaction, and the results demand a brief consideration.

In Table V. the vomiting and retching which occurred, whatever the cause, are tabulated. It will be seen that it was extremely rare for these symptoms to be more than a very temporary unpleasantness for surgeon and patient. In those few instances where the complications were severe, it has been shown that, with one exception, there were several factors involved. And it was evident from a study of the whole series that use of the adrenal derivatives had much to recommend it.

TABLE V.—*Vomiting and Retching.*

During and after operation. Total cases = 40 or 41·6%.	I. Vomited during operation. 9 cases or 9·3%.	(*a*) One vomit	6 cases (= 6·2%).
		(*b*) Four vomits	1 case (= 1%).
		(*c*) Not stated	2 cases (= 2%).
	II. Vomited after operation. 17 cases or 17·7%.	(*a*) One vomit	8 cases (= 8·3%).
		(*b*) Two vomits	3 ,, (= 3·1%).
		(*c*) Three ,, ...	1 case (= 1%).
		(*d*) Not stated	2 cases (= 2%).
		(*e*) Severe and repeated	3 ,, (= 3·1%).
	III. Retched during operation. 14 cases or 14·6%.	(*a*) Retched once... ...	13 cases (= 13·5%).
		(*b*) ,, twice ...	1 case (= 1%).

Now, of these derivatives adrenalin borate was employed in solution D (Table II.). As was anticipated, the duration

of the anæsthesia was prolonged; for in 19 cases an average dose of 3·7/5 c.c. of the solution (containing 2·96 cgr. stovaine) gave an average anæsthesia of 58 minutes, which is an improvement on any of the dextrin solutions hitherto employed. The following disadvantages are shown in Table III. In the first place 75 per cent. of patients showed unpleasant symptoms as the result of its use, while toxic absorption was present to a mild degree in 37·5 per cent. These complications were attributed to the irritating nature of the adrenalin, to which property may also be due the large percentage of headaches after operation (18·75 per cent.). Suprarenin was therefore substituted in solutions D1, D2, and D3 (Table II.) in varying proportions. If Tables II. and III. be studied in conjunction it will be found that some interesting information is forthcoming as a result of the use of these solutions.

As regards the duration of the anæsthesia, it is evident that the higher percentage of stovaine with a lower percentage of dextrin is of no advantage (the quantity of the suprarenin being constant); while, from the point of view of sequelæ, Table III. shows that such an increase in the quantity of stovaine administrated is distinctly disadvantageous. For with D1 74·9 per cent. of patients exhibited symptoms during operation, while 8·3 per cent. suffered from slight headaches afterwards, both figures being considerably higher than those of solutions D2 and D3. Again, the results of increasing the percentage of suprarenin from 0·005 to 0·0075 per cent. are tabulated under D3. This alteration is of no value from the point of view of the length of anæsthesia obtained, while, from the point of view of sequelæ, the balance is in favour of the smaller percentage as employed in D2. For if Table IV. be again referred to it will be evident that a greater number of serious and severe operations was performed in the series D2 than in D3, a fact which is not evident in Table III.; and consequently other contributing factors, apart from the anæsthetic, played an important part. (See Table III., notes ‡, §, and ‖.) In the relative comparison of the fluids D1, D2, and D3, Table IV. further shows that a much larger percentage of operations in D2 were upon the abdomen, and in these, therefore, paralysis to a higher level was necessitated. This has been shown to be one of the most important factors in inducing retching, respiratory pallor, &c. (See Table IV., read horizontally).

Taking all the facts into consideration it is evident that D2 has proved very much the most satisfactory combination employed, and consequently it has been concluded that this fluid (dextrin 6 per cent., stovaine 3 per cent., suprarenin 0·005 per cent., saline to 100) is the safest, will give the least discomfort to the patient, and the best anæsthesia for the surgeon. It is now prepared ready for use by Messrs. Martindale.

The following conclusions may, I think, be made relative to the use of this fluid:—The low percentage of stovaine renders toxic symptoms due to the absorption of this drug unlikely and rare; this unpleasant danger is minimised still further by the addition of the high percentage of dextrin, as shown in the previous series. Suprarenin is not so irritating as adrenalin, so that symptoms due to this property are absent; further, it has the advantage of helping to diminish absorption by lessening the vascularity of the part, and so localises the effects of the stovaine. In addition to these advantages suprarenin prolongs the duration of the anæsthesia, as shown in Table III., and therefore counteracts the effect of the dextrin in this respect. These conclusions are supported by a study of the tables, where another striking feature is also evident.

It was pointed out in the report on the second series that dextrin delayed the absorption of stovaine, and in support of this it was shown that whereas toxic symptoms were often pronounced during operation when stovaine-glucose was employed (first series), these were either absent or negligible when dextrin was used as the vehicle; such symptoms as were present manifested themselves some time after the conclusion of the operation and after the return of sensation and power. These features were also evident in the present series, as shown in Tables III. and VI. Table VI. gives the percentages of cases in which these after-effects were present; and it will be seen that vomiting after operation occurred in quite a fair number. These vomits, however, were in nearly all instances almost negligible and in no way comparable with the vomiting after general anæsthesia (see Table V.). Headache was never severe enough to require treatment and never lasted longer than an hour or two. Of the remote sequelæ, reported from time to time by various authors, there are none to report in this series; statements to the effect that such sequelæ are induced by the adrenal derivatives are not supported by my own experience.

TABLE VI.—*Immediate and Remote Sequelæ.*

—	Vomits after operation.	Severe headache (requiring treatment).	Slight headache.	Paraplegia and incontinence.
D.	7 = 41%	—	3 = 17%	—
D1.	2 = 16%	—	1 = 8%	—
D2.	6 = 20%*	—	= 3%	—
D3.	2 = 8%	—	1 = 4%	—
A1.	0	—	0	—
C.	0	—	0	—
G.	1 = 25%	—	0	—

* Two children very ill before operation.

Conclusions.—A. *Technique and management.*

1. The puncture should be made in the second or third lumbar intervertebral space after the preliminary anæsthetisation of the skin with eucaine (3 per cent.), the patient being in the lateral position.

2. The child should be immediately turned over on the back and the pelvis raised for about 15 to 20 seconds, always remembering to keep the head and shoulders elevated. By this means the heavy dextrin carries the stovaine to the lowest point; this can be regulated by the curve of the back.

3. The preparations for operation may be commenced directly the child has been turned on to the back, for by the time these are completed anæsthesia will be sufficient to make the incision.

4. *The level of the paralysis* is regulated: (*a*) *By the bulk* of fluid used—the larger the bulk of fluid the higher will be the resulting anæsthesia; and (*b*) *by the position* of the patient, as already explained.

5. *The duration of the anæsthesia* can be regulated to some extent by: (*a*) *The quantity of stovaine administered.* This is shown in the middle columns of Table III., but the figures here need some amplification. Thus, with fluid D1 3/5 c.c. and 4/5 c.c. produced an average anæsthesia of 64 minutes, while a dose of 5/5 c.c. only induced paralysis for 48 minutes. This apparent discrepancy is accounted for when it is realised that all the cases which had 5/5 c.c. (three in number) required a high paralysis for operations on the intestines; for it has been previously shown that, not only is a larger bulk of fluid required for the injection in abdominal work than is necessary in operations on the pelvis and extremities, but also that anæsthesia disappears from above downwards, and therefore does not last as long above as below.

(*b*) *The height of the paralysis*, and consequently the bulk of fluid administered. The higher the anæsthesia extends, the longer will any part below this level remain anæsthetic.

(*c*) *The completeness of the paralysis.* If the needle is not accurately introduced, so that the whole of the distal lumen is well within the spinal theca, a variable and incomplete paralysis may result which, though possibly sufficient for the operation required, will not last as long as a similar dose introduced well within the theca. This fault in the puncture may lead to unsatisfactory results, even though a free flow of cerebro-spinal fluid is obtained; for it must be remembered that the point of the needle may just puncture the dura, with its point only, on the anterior aspect of the space, after penetrating the posterior layer; and that, when the cannula is introduced, its point may then lie *outside* the space. To avoid this: (1) The needle should always be withdrawn, after the puncture, to the greatest distance which permits a free flow of cerebro-spinal fluid; (2) the face of the needle point should not be very oblique, but should form a fairly large angle with the axis of the shaft; and (3) the point of the needle should pentrate the dura in the mid-line.

6. *Retching* is to be anticipated if paralysis has involved many of the intercostal muscles. Its onset may be expected from 10 to 15 minutes after the injection, and the phenomenon will rarely last longer than from 30 seconds to

1 minute. This complication has to be reckoned with in high anæsthesia, and since the time of onset is fairly constant the surgeon is given opportunity to guard against any undesirable consequences arising from it.

7. "*Respiratory pallor.*"—This is to be expected in a mild degree when the paralysis is high enough to alter the character of the respirations. It is transitory in nature, being easily restored almost to the normal by brandy or by otherwise stimulating the patient, and so inducing a forced inspiration by the overaction of the upper intercostal and accessory respiratory muscles. This manifestation is of quite a different nature from the livid pallor, sweating, and dilated pupils seen in stovaine poisoning. Another factor in the causation of a slight change of colour is the fall in blood pressure which occurs about 20 minutes after the injection. Dr. L. G. Parsons and the writer are at present investigating this point, and hope shortly to bring forward the results obtained; in desperate cases this factor must be guarded against in the manner indicated (*vide supra*).

8. *Feeding* during operation is permissible and even advisable in some cases when anæsthesia is not required above the *tenth dorsal segment*. If the paralysis is higher than this, feeding is contra-indicated because in high paralysis the stomach is usually distended (sometimes to a considerable extent), and in this condition the presence of food is liable to induce vomiting.

9. *Management.*—Older children should be advised as to what they may expect, and they should be warned of each necessary manipulation before this is commenced. In younger children and infants the surgeon must rely on the speed with which he can carry out the manipulations, so that the puncture can be made and the injection given before the child is well aware of what has taken place. It is unusual for the resulting disturbance to be as great as in the administration of a general anæsthetic, while many children do not know that anything has been done beyond the hypodermic injection of eucaine. In children of all ages success, from a psychical point of view, depends very largely on the management of the patient by the sister or nurse responsible. Fortunately, children who are very ill, when spinal anæsthesia is specially called for, never give any trouble or anxiety in this respect.

B. *Advantages to the Patient.*

1. *Control of surgical shock.*—There is no question that this formidable factor in grave operations is very much reduced, and the prognosis in such cases is correspondingly improved. This is shown by the improvement in the results of emergency and exhausting operations at Great Ormond-street since the adoption of spinal anæsthesia. Dr. Parsons and the writer believe that, so long as the anæsthesia is *complete* (as is the case when fluids of a low diffusibility are distributed over a small area of the nerve roots), surgical shock is altogether absent, but that, when the effect of the stovaine on the nerve roots begins to wear off and *anæsthesia* passes off into *analgesia*, signs of shock begin to appear. (See case of Fairbank and Vickers.) Though there is not sufficient evidence at present to be definite, it seems that the value of the method in controlling shock lies in the *completeness* of the paralysis which is obtained with fluids of low diffusibility acting over a small area; and that methods inducing analgesia only over a large area, by the administration of highly diffusible fluids as recommended by Jonnesco, can have very little advantage over general anæsthesia as regards the mitigation of shock.

Again, in serious collapse the specific gravity of the cerebro-spinal fluid is probably raised owing to the loss of fluid sustained by the patient,[6] to the feeble action of the heart, and therefore the lowering of the general blood-pressure, or to both these factors. Consequently such diffusion and absorption as may ordinarily take place is less likely to do so in collapsed patients, and I have noticed that such slight symptoms as are manifested from time to time are less often seen, and when present are of a slighter degree in collapsed than in healthy subjects. Though it is not possible to be definite, I am inclined to think that this relation holds true also of weakly and plethoric subjects when both in average health.

2. The slight attack of vomiting after operation, usually limited to one or two acts, may be neglected; and it may be considered that absence of this unpleasant manifestation, so often a severe and occasionally dangerous sequela of general anæsthesia, is a point greatly in favour of spinal anæsthesia. This particularly applies to those cases whose after progress is jeopardised by the onset or persistence of vomiting.

3. *Pain* after operation is very much less prominent than when general anæsthesia has been employed; so marked is this feature that it is quite unusual for the administration of any sedatives to be necessary. Restlessness, therefore, is much diminished and, consequently, the conditions which favour healing of the tissues are greatly improved.

4. The danger of post-anæsthetic pneumonia, bronchitis, acute pulmonary phthisis, "delayed chloroform poisoning," &c., is much diminished when spinal anæsthesia is employed; consequently its use is indicated if possible in subjects of pulmonary disease and, possibly also, of cyclic vomiting. Its use is further indicated in long operations on those suffering from cardiac lesions, since the absorption of stovaine can be so markedly delayed that a full anæsthesia can be obtained with a minimum risk of depressing the action of the heart by the direct effect of the poison on the cardiac muscle—a serious risk in chloroform anæsthesia. Presumably also the risk of accidents in subjects of "lymphatism" is diminished.

C. *Advantages to the Surgeon.*

These, of course, embrace any advantages accruing to the patient. But, in addition, the absolute flaccidity of muscles may be mentioned, for freer access to a given part is thereby rendered possible through a smaller incision, while manipulation is correspondingly simplified. Hæmorrhage is also diminished, since the paralysed parts become distinctly anæmic. These factors add considerably to the speed and accuracy of an operation, and this is of importance in those cases where success depends largely on rapidity. For it is in this class of case that spinal anæsthesia will often be called for.

Again, in abdominal work, apart from the ease with which a small incision can be pulled from one side to the other (owing to the extreme flaccidity of the muscles), and so access to different parts of the abdominal cavity can be simplified, manipulations are facilitated by the diminished tendency for the intestines to protrude from the wound. This is of special advantage to the surgeon in cases of intestinal obstruction, and, in all cases of abdominal distension, renders the final suture of the peritoneum a comparatively easy procedure without assistance. Under general anæsthesia muscular relaxation to a corresponding extent would be highly dangerous and, in emergency work, would cause the death of the patient. Again, the definite anæmia and flaccidity of the bowel wall under spinal anæsthesia are often of great assistance in intestinal work; in cases of intussusception reduction is much simplified and much manipulation is saved—a great factor in the improved prognosis of such cases. This feature has been noticed by others who have operated on intussusceptions under spinal anæsthesia.[7] Other minor advantages may appeal to individual surgeons in special operations, but it is not necessary to refer to these.

Such disadvantages as are consequent on the use of this method are very greatly overshadowed by the advantages to patient and surgeon in certain cases. I believe that spinal anæsthesia is urgently called for on all occasions where the after progress of a case is likely to be influenced by shock during operation, and often in cases when its employment is of definite assistance to the surgeon in doing his work as perfectly as possible.

Harley-street.

[6] THE LANCET, Oct. 2nd, 1909.

[7] Fairbank and Vickers: Loc. cit.

THE HEALTH OF DEVONPORT.—The medical officer of health of Devonport (Mr. O. Hall), in his annual report for 1909, gives the population of the borough as 83,103, the area being 3176 acres, with 9775 inhabited houses. 968 deaths were registered, making a death-rate of 11·6 per 1000, the lowest ever recorded in Devonport. 2163 births were registered, corresponding to a birth-rate of 26·1 per 1000. The zymotic death-rate was 1·1 per 1000. The infantile mortality was 95·2 per 1000 births, against 116·7 in the preceding year. Mr. Hall urges the appointment of a health visitor.

CASE OF PAPILLOMA CAUSING HYDRONEPHROSIS IN A HORSE-SHOE KIDNEY.

BY JOHN MORLEY, M.B., CH.B. VICT.,
DEMONSTRATOR OF ANATOMY, MANCHESTER UNIVERSITY; LATE HOUSE SURGEON, MANCHESTER ROYAL INFIRMARY.

I AM indebted to Professor G. A. Wright, under whose care the patient was in the Manchester Royal Infirmary, for permission to publish the following notes.

A man, aged 32 years, an outdoor telegraph worker, was admitted to the infirmary on Feb. 8th, 1909, complaining of a swelling in the left loin associated with hæmaturia. The patient gave the following history. His health had been excellent until some four months back, when he first noticed that his urine was abnormally dark and coffee-coloured. In the course of a month it began to show a distinct red colour like blood, and this condition had persisted without much change in intensity ever since. There was no increased frequency of micturition nor any pain associated with the act. About six weeks before admission he began to suffer from occasional twinges of pain in the left loin shooting down to the groin and coming on independently of micturition or defæcation. This drew his attention to a swelling in the left loin and led him to seek medical advice. The pains had become somewhat worse since, but had never been very severe. The swelling had increased steadily without intermission, and the quantity of urine had been constant throughout, as far as he could tell. Since the onset of symptoms he had lost about half a stone in weight and felt rather weaker, but his appetite had remained good and the bowels were regular. He was a total abstainer and gave no history of venereal disease. He was married and had one healthy child. The family history was good. There was no history of malignant disease in the family.

On admission the patient was a healthy-looking, muscular man, of medium height. The abdomen showed an obvious swelling in the left loin. This was found on palpation to be large and oval in shape, with its long axis directed vertically. It was smooth and firm, and rather elastic to the touch. No fluctuation was detected. There was no tenderness on palpation. Its upper limit was lost under the costal margin. The lower pole extended down into the iliac fossa. Internally it reached almost to the middle line and had a smooth rounded border without a notch. On palpating across its full rounded outer border towards the back it was lost under the erector spinæ mass. On percussion the tumour was dull, except for a vertical band of resonance in front, marking the descending colon. There was only slight movement on respiration. The urine was blood red; it had a specific gravity of 1015. It was acid and contained some amount of albumin. There was a deposit of red and white corpuscles with some large oval cells that might have been epithelial or sarcomatous. A diagnosis of renal growth, probably sarcoma, was made and it was decided to attempt nephrectomy.

Operation was performed on Feb. 17th, by Professor Wright, chloroform being administered by Dr. W. J. S. Bythell. A large lumbar incision through the thick abdominal muscles showed that the tumour was fluctuant, and in the attempt to draw it up into the wound a hole was torn in the cortex, through which gushed a good quart of port-wine coloured fluid. After this the hydronephrotic kidney could be delivered readily. It was a large unilocular sac containing a solid growth on its inner aspect in the region from which the ureter ran downwards. The ureter and vessels were clamped and the upper pole was freed. On attempting to free the lower pole the hydronephrotic sac was found to give place to normal kidney substance. The kidney was abnormally elongated, and could be traced downwards and then inwards across the middle line a short distance above the sacral promontory. No right kidney could be palpated through the incision (though its absence could not be definitely ascertained), nor could a second ureter be felt below. Since it had every appearance of a single horse-shoe kidney, no further attempt was made to free the lower pole, but it was cut across at the lower limit of the cystic portion. The left ureter and renal vessels were now ligatured and divided and the cyst removed. The cut surface of the normal kidney substance remaining was sutured into the incision for drainage purposes, as was the upper end of the ureter. The large cavity remaining was then flushed out with weak biniodide of mercury lotion and normal saline solution and the wound was closed with silkworm gut. A large drainage-tube was left in. The shock of the operation was considerable. On the following morning 10 ounces of blood-stained urine were obtained from the bladder by catheter, after which he passed on successive days 14 ounces, 32½ ounces, and 34 ounces of clear urine, containing on an average 1·5 per cent. of urea, besides a considerable amount that escaped into the dressings from the divided kidney. On the second day he began to suffer from violent and distressing hiccough that was not relieved by sedatives. Propping him upright in a chair gave partial relief, but he could not bear this position long. On the fifth day the pulse and urine began to fail, and on the morning of the sixth day he died.

Necropsy.—The diagnosis of horse-shoe kidney was confirmed. There was no kidney in the right renal fossa. The portion of the single kidney left at the operation was found to extend across the middle line at the level of the fifth

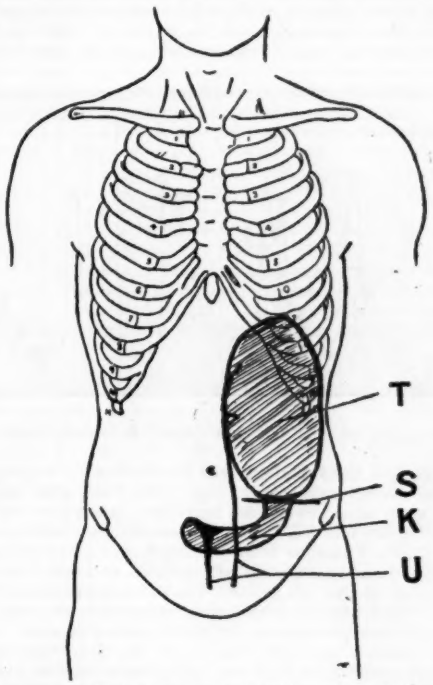


Diagram showing the outline and position of the kidney. T, Tumour. S, Point of section. K, Normal kidney substance. U, Ureters.

lumbar vertebra, reaching over one inch to the right of the middle line, and from its concave upper margin the right ureter ran down across the anterior surface of the kidney to enter the pelvis. The part of the organ removed at the operation was of about the size and shape of a cocoanut shell. It showed a single large cavity, smooth internally, with but little trace of subdivision into lobules. The cortex was half a centimetre thick, tough and fibrous, and microscopic sections through it showed only fibrous tissue, except at the lower part, where kidney tubules were present. Inside the cyst on its ureteric aspect was situated a sessile, papillomatous growth fungating into the cyst. It was remarkably like a papilliferous ovarian cyst in appearance. The main growth consisted of pale pink nodules, as it were heaped together, and the surface was everywhere lobulated finely like a raspberry. Scattered all round this on the cyst wall were isolated nodules of the same pink raspberry-like appearance. The growth completely filled the pelvis of the kidney, and it was only with difficulty that a probe could be passed up from the ureter through it. Microscopical sections showed a typical papillomatous

growth consisting of several layers of tall columnar epithelium on a delicate connective-tissue stroma. There was no infiltration of the subjacent wall of the hydronephrotic sac.

Remarks by Professor WRIGHT.—I will only add to Dr. Morley's report that the combination of papilloma with hydronephrosis in a horse-shoe kidney has not, so far as I have ascertained, been previously recorded. It is, I think, only the second or third horse-shoe kidney I have met with during an operation, and one has little ground to go upon in deciding upon the risk of interference in such cases. The evidence of cystoscopy and radioscopy might or might not be of value.

Manchester.

RAT-BITE FEVER.

BY GEORGE S. MIDDLETON, M.D. GLASG.,
PHYSICIAN TO THE ROYAL INFIRMARY, GLASGOW.

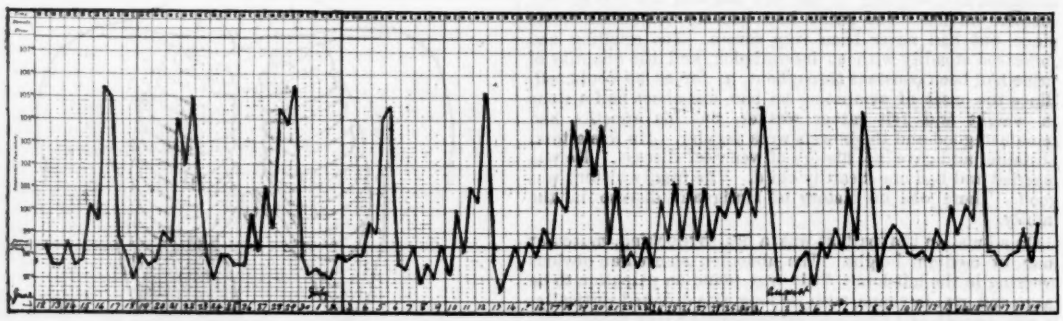
THE January issue of the *Quarterly Journal of Medicine* contains an interesting paper by Dr. T. J. Horder on three cases of irregularly periodic fever associated with the bite of a rat, and so alike in their other features as to cause him to group them together under the name of "rat-bite fever." To his case I wish to add another which was under my observation in the Glasgow Royal Infirmary many years ago.

A female, aged 3 years, was admitted to a surgical ward of the Royal Infirmary on June 12th, 1895, with the story that while asleep in bed she had been bitten by a rat on the back of the left hand, that the wound had healed readily, but that a fortnight later the hand and arm had begun to swell and had become red and painful, and that a lump had appeared in the left axilla. The child was reported to have had feverish attacks, each lasting about 48 hours, with severe sweating and prostration, but no complaint of pain. Before each feverish paroxysm the hand and arm were said to present swelling, so that the father knew when to expect an attack. Between the attacks there had generally been two or three days of apyrexia.

On admission the dorsum of the left hand was a little swollen and presented two or three small cicatrices, which her father (a gamekeeper) stated were due to dog-bites. In the left axilla there was a small but enlarged superficial lymphatic gland, the skin over which was a little red but not tender. While in the surgical ward she had an attack of fever lasting from June 15th to 17th, with a maximum temperature of 105·4° F. She was transferred to my ward on the 21st and remained in it until August 20th, and during that time she had eight attacks of fever. These were not preceded by any marked swelling of the hand or arm. Their duration was variable, but never less than two days. In some the onset was slow, in others quite abrupt. The temperature always rose to 104° or 105°. A few enlarged glands were found in both axillæ, but they were not tender. It was thought that there was a little dulness at the base of the left lung, but it was indefinite. During the third febrile attack there was observed a red, patchy, measly rash on the cheeks, forehead, and legs, but scarcely at all on the trunk. A rash of similar character, but generally involving the trunk also, was met with in almost every subsequent febrile attack.

During the whole period of the child's residence in hospital there was nothing discovered in the lungs or in any of the other organs to account for the pyrexial attacks indicated upon the accompanying chart. The liver and the spleen did not seem to be enlarged. Only on one occasion was tenderness noted in any of the lymphatic glands. Treatment consisted in the administration of one grain of quinine every three or four hours. The child was taken home in August, and thereafter had several febrile attacks. She was under observation for a week in January, 1896, and was then quite well.

The examination of the blood was kindly undertaken for me by my friend, Dr. W. K. Hunter, who has given me the following report: "During the month of July the blood was repeatedly examined, both in fresh and in stained films. There was a slight leucocytosis and many of the leucocytes contained an undue amount of black pigment granules. In fresh specimens several of the red corpuscles were seen to contain one or more rod-shaped bodies which showed a certain amount of movement, but these were not visible in stained preparations, and their nature was not determined. In one fresh film there was discovered a diplococcus which seemed to have a capsule. Cultures made from the blood in several different media gave a growth only in one tube—namely, in an anaerobic gelatin tube. This growth had a reddish colour, and on microscopic examination was found to be a diplococcus without capsule. This micro-organism was not familiar to me nor to any of the staff in the bacteriological department of the infirmary. The pathogenic properties of the organism were not investigated."



Glasgow.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A FATAL CASE OF GASTRIC TETANY.

BY GEORGE A. GORDON, M.D. EDIN.

THIS condition is, I think, sufficiently uncommon to warrant the following case, which came under my care recently, being recorded.

At 9.30 one morning I was summoned to a woman who I was informed had had a fit. I had not seen the patient previously, and on arrival found the woman perfectly conscious. She told me her age was 48, and that she had suffered for many years from indigestion, vomiting nearly everything she took to eat. She had never had medical advice, fearing that the medical man would make her take to her bed, which she could not afford to do. On examination I found both arms flexed at the elbows and wrists, the arms being folded over the chest. The fingers were bent at the metacarpo-phalangeal joints and extended at the terminal ones. The lower extremities were perfectly rigid, with the toes flexed. It needed considerable force to straighten the arms or bend the legs. The stomach was greatly dilated and I suspected the presence of a small mass in the region of the pylorus. Of this I could not be certain, as the abdominal muscles were fairly rigid.

I administered 30 grains of potassium bromide and 15 grains of chloral hydrate, but on returning an hour

later found that the draught had had no effect. The patient was now becoming cyanosed and was slightly delirious. Chloroform was then given, and when deeply under its control the limbs became only slightly less rigid. On recovering from the effects of the chloroform the woman seemed better and talked more rationally. In a short time, however, she relapsed into delirium. She became unconscious about 12 o'clock and died at 1.15.

As far as I could find out this was the first attack of the kind the patient had had. On the morning in question a neighbour, hearing screams and suspecting that something was the matter, went in and found the woman lying in bed unconscious and quite stiff. There seems no doubt that this was a true case of tetany and that the patient's life could have been greatly prolonged had she sought advice from a medical man at an earlier date.

Richmond, S.W.

NOTES ON AN INTERESTING CASE OF TRIPLETS.

BY GEORGE ALDRIDGE, L.M.S.S.A. LOND.,
MEDICAL OFFICER OF HEALTH, SHEERNESS-ON-SEA.

THE retention of dead twin fœtuses until a third fœtus had reached to nearly nine months' development is, I think, sufficiently rare to warrant publication.

On Whit-Monday I was called to attend a case of labour—a primipara, aged 28 years. On examining I found presenting outside the vulva the foot and leg of a fœtus. This I was able to deliver quickly and easily, and found it to be a male mummified fœtus of about six months' development. On further examination I felt a bag of membranes bulging at the os uteri and the head of a child presenting. The os being fully dilated I ruptured the membranes and in about an hour delivered the patient of a living female child of about 8½ months' development. I then placed my hand upon the abdomen to express placenta, and after waiting some time with no result I again examined the patient. The uterus had contracted firmly, but I could feel through the os the foot protruding of another fœtus. This was gripped by the contracted uterus, and the patient, although uneasy, was having no pain. After waiting an hour I examined again and found the os uteri dilating and the leg as well as the foot of a fœtus presenting. Gentle traction seemed to bring on pains, and in about 20 minutes I had delivered the woman of another fœtus (male, mummified) of about four months' development. The placentæ were removed with difficulty. The two male fœtuses were attached to one placenta, whilst the living female child had a separate one. This was apparently a case of two ova, one of them double.

Sheerness.

NOTES ON TWO CASES OF IMPERFORATE HYMEN IN SISTERS.

BY W. BOXER MAYNE, M.R.C.S. ENG., L.R.C.P. LOND.

THE occurrence of this variety of defective development in two sisters is perhaps of some little general gynæcological interest.

The first case was a girl, aged 19 years. Her mother had noticed that for some time she had walked in a somewhat peculiar manner, and being aware that the menstrual flow had never made its appearance sought medical advice. The girl informed me that for several months she had suffered from aching pains in the abdomen and had lately noticed "a swelling in the privates." On examination I found present the condition of hæmatocolpos, the uterus being enlarged to the extent of a four months pregnancy, and protruding between the labia a convex bluish swelling of the size of half a billiard ball. This vaginal septum was incised, when there drained away a large quantity of viscid, almost meconium-like fluid which was unfortunately not measured. A week later the girl was anæsthetised (the incision showing a tendency to somewhat contract) and the fibrous septum wholly broken down; the os was found to be still markedly patulous and œdematous.

The second girl was 16 years of age, whom, having never menstruated, I was asked to see as well on this account. The hymen was found to be absolutely imperforate; this was incised and freely stretched; no retained menstrual fluid was present.

Swindon.

Medical Societies.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

The Wassermann Reaction in Eye-work.—Acute Hæmorrhagic Pancreatitis.

A MEETING of this society was held on June 3rd, Mr. W. MCADAM ECCLES being in the chair.

Mr. N. BISHOP HARMAN read a paper on Some Recent Experiences of the Wassermann Reaction in Eye-work. The work covered a series of some 40 cases seen in the out-patient department of the West London Hospital. The pathological examination of the blood by this method was performed by Dr. E. H. Blunt, working under the supervision of Dr. J. M. Bernstein, pathologist to the hospital. After a brief discussion of the principles underlying the reaction and a note of the technique adopted, the features of the cases were described. They formed three groups: 1. Children suffering from acute interstitial keratitis of a type that left no reasonable doubt that the inheritance of syphilis was the primary factor; in each case the Wassermann reaction proved positive. Further, the mothers of these children were simultaneously examined in the same fashion, and in each case the reaction was positive. Such a result indicates that although the mothers show no sign of syphilis yet they are as profoundly affected by the syphilitic poison as their marked offspring. 2. Twelve cases of ocular disease past or present in adults. The conditions ranged from scars of interstitial keratitis long passed to recent optic atrophy with ocular paralyses. Again, in each of these cases of presumed syphilitic origin the serum reaction proved positive. 3. The last group of 10 cases covered a varied selection of inflammations as nearly similar as possible to those found in the syphilitic groups, and yet in which there was no suspicion of a syphilitic origin; the subjects were equally divided between children and adults. In this series of cases the serum reaction, taken under exactly identical conditions as the foregoing, proved negative. In conclusion, Mr. Bishop Harman considered that these results added to the cumulative evidence of the reliability of the Wassermann reaction, and he instanced as one of its commendable features the fact that it entailed no risks to the patient and no inconvenience other than the abstraction of a few drops of blood. When the test had been standardised, as the pathologists now proposed to do, its value would be increased, for it would not only indicate a general syphilitic infection, but also point to the particular nature of a given local inflammation.—Mr. MCADAM ECCLES suggested testing the father and apparently healthy brothers and sisters of the patient, and he raised the question as to whether it might not be worth while to treat an apparently healthy child with antisyphilitic remedies in view of the treatment of interstitial keratitis being so prolonged.—Mr. J. E. R. MCDONAGH mentioned two cases of interstitial keratitis recently under his care. One was a girl who first showed the disease at the age of 23 years, and gave a positive Wassermann reaction. The second case was a married woman with one child. She had had double interstitial keratitis and had Hutchinsonian teeth; both mother and child gave a positive reaction. He recommended that all children of a suspected mother should be tested, and those giving a positive reaction treated with antisyphilitic remedies. He mentioned the work done in animals as to syphilitic interstitial keratitis, and that the spirochæta pallida had been found in the cornea.

Dr. A. ELLIOT read a paper on Acute Hæmorrhagic Pancreatitis. The conditions presented by two cases of the disease were detailed in full. Both occurred in men between 40 and 50 years of age, who were considerably over the average weight for their age and height, and who habitually took alcohol in considerable quantity. In both the onset was sudden, and in both the chief symptom was intense epigastric pain with vomiting. In one case laparotomy was performed; the other was not operated on. Both cases ended fatally, one in 26 hours and the other in 48 hours. The etiology of the disease was discussed. It was pointed out that the disease is most prone to occur in adult males, though not confined to men or adult life. Persons of abundant adipose tissue and alcoholic habits are the most

frequent sufferers. The relation of cholelithiasis with pancreatic inflammation was traced, and the relative parts played by inflammation and hæmorrhage discussed. As to diagnosis, it was suggested that the suddenness of onset, the extreme severity of the pain, and the persistence and urgency of the vomiting formed a symptom-complex more frequently found in this malady than in the other acute emergencies in the upper abdomen; that there was but little tenderness to palpation in the early stages, and that the collapse to which various writers have attached much importance did not occur in Dr. Elliot's cases until a late period of the disease. The pancreatic urinary reaction of Dr. P. J. Cammidge and the presence of fat necrosis were shown to be of value in the later stages. The acute abdominal conditions for which pancreatic inflammation might be mistaken were enumerated and the differential diagnosis discussed. The paper closed with an appeal for early surgical measures in all cases in which acute hæmorrhagic pancreatitis was diagnosed or deemed to be the most likely explanation of the symptoms.—Mr. MCADAM ECCLES said that he considered drainage through the lesser omentum and free drainage of the biliary passages gave the only hope if done in the early stages of the disease.—Dr. G. C. LOW described four post-mortem examinations on this condition which he had performed whilst doing the pathological work at the West London Hospital. He described the naked-eye and microscopical appearances of fat necrosis, and drew attention to its being found only in the abdominal cavity, not, for instance, in the subcutaneous fat of the abdominal wall or within the thorax. He also mentioned a case of malarial hæmorrhagic pancreatitis; in this case there were no areas of fat necrosis.—Dr. J. A. CAIRNS FORSYTH had seen six cases of acute hæmorrhagic pancreatitis operated on. Only one was successful. He was inclined to think that many of the cases were non-inflammatory at the commencement—in fact, an apoplexy of the gland. He pointed out that they were generally cases in which hæmorrhage might occur in other tissues. He thought that a gauze drain might be placed in the foramen of Winslow if patent, as well as drainage of the lesser sac and bile passages.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

Insanity as Disorder of Conduct.—Examination of Cerebro-spinal Fluid.—The Toxic and Exhaustion Psychoses.

THE general quarterly meeting of this association was held at the rooms of the Medical Society of London, Chandos-street, W., on May 24th, under the presidency of Professor W. LEWIS.

Before entering upon the business of the meeting the PRESIDENT referred in eloquent and touching terms to the recent death of his late Majesty King Edward VII., by which the nation had sustained a great calamity. The passing away of his princely spirit was an irreparable loss, and the medical profession felt that loss as keenly as any. The meeting rose and passed in silence a resolution to memorialise King George V. and the Queen-Mother on the sad event.

After the formal business had been transacted, Dr. CHARLES MERCIER read a paper on Insanity as Disorder of Conduct. He said that he was surprised to find at a recent meeting of a committee of the association that he found not a single supporter for his suggestion that the study of conduct should form an item in the proposed syllabus of the subjects for a diploma in psychiatry. He had supposed that the doctrine that insanity and disorder of the mind were convertible terms had been exploded 25 years ago. He proceeded to instance cases of claustrophobia, and giddiness as disorders of mind that are not insanity, and cases of insanity in which disorder of mind was irrelevant. In one case, on being introduced to a lady, she spat in his face. He sat down at once and certified her to be insane without interchanging a word with her. He knew nothing of the state of her mind, nor did it interest him. If the mental condition of a patient was given in a certificate of lunacy, the certificate did not give facts observed, for the mental condition could not be observed; it could only be inferred from conduct. Nor is the mental state important, except as suggesting tendencies in conduct. Since in every case we have to infer mind from conduct, and then infer back again from mind to conduct, why not simplify the operation and look to conduct as of primary importance? The syllabus stated that it was important for the student of insanity to test the patient's reaction-time, to discover his æsthetic sentiments, to examine his estimation of time and space, to know his response to the ergograph; but whether he was suicidal or dangerous, whether he could earn his living, whether he tore up his clothes or was indecent, whether he tried to murder his wife and children—all these were matters of profound indifference to the alienist. That was the lesson to be learnt from the syllabus; that is what students are taught by it. He submitted that conduct was all-important in insanity, that it ought to be studied, and ought to be studied systematically.—Dr. G. H. SAVAGE said that certain certificates which he had signed had been wide of the mark concerning facts as observed by himself. A lady might have her powers of calculation and reasoning intact, but if she left home and did many strange things indicating a tendency to lust, one would recognise symptoms indicating insanity. Because a man lost a certain kind of memory he should not be regarded as insane; a man might be very mad and yet be right in his conduct. Even the committal of a crime did not in itself constitute insanity. Some teachers were always insisting on the danger of the definite, and certainly one must not be governed by definitions which were too rigid. He was much indebted to Dr. Mercier for insisting that insanity must be looked at from the practical rather than the purely scientific point of view.—Dr. W. H. B. STODDART said the point at which he parted company from Dr. Mercier was that he (Dr. Stoddart) regarded conduct as a part of mind. The difficulty was that a line had to be drawn between conduct and what Dr. Mercier called mind. Conduct appeared to be something muscular; but he did not think one could stop at the muscles and exclude the nervous system or the skull's contents. It would not be easy to say where one's study of conduct was to leave off and the study of psychology to begin.—Dr. R. H. STEEN remarked that Dr. Mercier said when conduct was disordered there was disorder of mind, and he (Dr. Steen) wished to know whether the converse was true. He instanced the case of a girl against whom no disorder of conduct could be alleged, yet who was certified as a private patient, and at the end of a year the certificate was renewed. What was the superintendent of an institution to do with such a case?—Dr. T. DRAPES said he thought Dr. Mercier's remarks would have been apt if he had used the word "certifiable" before "insanity." One was taught that the mind consisted of three departments, intellect, emotion, and will, and that insanity might show itself by disorder of any of these, or of all three together. If Dr. Mercier's views were fully carried out, the occupation of the alienist would be gone, because the man in the street would be regarded as good a judge as the skilled alienist as to whether a man was or was not sane. But the alienist was required to give some explanation of the man's conduct, and that could only be done by a reference to the man's condition.—Dr. A. R. URQUHART complained that the paper just read was not that of the physician, because it did not reflect the physician's point of view. If insanity was merely a disorder of conduct, then the question was rather a legal than a medical one, though, of course, the alienist had to address himself to legal as well as medical matters. Insanity he regarded as a disease of the brain which affected the actions of the body, and the alienist had to inquire what was the reason of the disorder of mind, and what could be done to restore the mind to the normal condition.—Dr. J. F. DIXON asked whether Dr. Mercier wished insanity to be regarded merely as a disorder of conduct without any reference to the supposed state of mind which led up to that disordered conduct. If insanity was merely disordered conduct, how could accommodation be provided in this country for all the cases of insanity?—Dr. BEDFORD PIERCE said he understood the thesis to be that there was no insanity without disorder of conduct. If that were so, there was no knowledge of insanity without disordered conduct. How did Dr. Mercier speak of the person troubled with obsessions to murder? A man came under his charge voluntarily because he wanted to be protected against himself, as he had an obsession that he would murder his children. His conduct in seeking such protection, however, was not insane.—Dr. R. L. LANGDON-DOWN asked whether one could wholly infer the mental condition from the conduct. Conduct was the text

by which the mind was read, and the text needed to be carefully studied so as to know the state of the mind.—Dr. H. RAYNER narrated a case in which a surgeon did a very strange act to himself, and in which a certificate of insanity was not signed as the alienists concerned did not think there was a likelihood of his doing a similar thing again.—The PRESIDENT said he understood Dr. Mercier to controvert the legal fiction that delusion was a necessary proof of insanity. He (the President) agreed that conduct should be very widely taken into consideration, but a stumbling-block was provided by the problem as to how to deal with crime. It would be difficult to solve in the courts the problem as to what disordered conduct constituted crime.—Dr. MERCIER replied on the discussion, insisting that he was pleading for a systematic study of conduct. He had all along taken the view that every man had an unescapable responsibility for his own acts; and he had never regarded crime and insanity as convertible terms. In answer to Dr. Bedford Pierce's difficult question he would say, look at the man's conduct and ascertain what he did. The man referred to did the most sane thing he could—namely, put himself under Dr. Pierce's care. He (Dr. Mercier) strongly repudiated the notion that mind was to be neglected altogether; but hitherto mind had been too exclusively studied, and conduct had been left out.

Dr. JOHN TURNER read a paper on the Examination of Cerebro-spinal Fluid, with special reference to the diagnostic value of Ross and Jones's test.—Dr. C. HUBERT BOND corroborated the statement as to the ease with which the test was applied, and said he hoped to hear of some equally ready test to show the cases which, at some period of their lives, had had syphilis. The test just described seemed applicable only to syphilis of the nervous system.

Dr. STODDART gave an Enunciation of a Theory of the Toxic and Exhaustion Psychoses. He said the disease to which he referred was also known as post-febrile insanity, acute confusional insanity, and acute hallucinatory insanity, though on the continent the term amentia was preferred. All the cases had the same series of symptoms, and they arose as the result of toxæmias of various kinds, mainly those following acute fevers, though it might occur in those who had undergone profound physical strain, as in one case, that of a man who won a long-distance race. It occurred following mental shock and in those who worked up for examinations. A remarkable symptom was peripheral anæsthesia, often with inability to recognise sounds. Some had apraxia, catalepsy, and katatonia; they also had constant hallucinations in which there was a positive and a negative factor. The peripheral neurons were dissociated, and he believed that dissociation must occur at the synapses, for there was increased synaptic resistance in the whole nervous system.—Dr. HACK TUKE and Dr. BEDFORD PIERCE discussed the contribution, and Dr. STODDART replied.

POST-GRADUATE MEDICAL WORK, UNIVERSITY OF VIENNA.—For medical men who wish to do post-graduate medical work at the University of Vienna there exist lectures, courses, and practical work. The University lectures are given by the ordinary and extraordinary professors in their institutes and clinics and are held daily for one or two hours during the term, the fees being the same for students and medical men. The courses are held by extraordinary professors, by *privat-docents*, and by assistants, regularly. They generally last four weeks at the rate of one hour per day. They are frequented almost exclusively by medical men and the number of students is generally limited to 10. Practical work is either given in the form of courses, in which the students get the necessary anatomical and clinical material, or for more advanced scholars places can be obtained in the "theoretical" institutes; they can also take part in the practical work at the hospitals as volunteers. For the right of working in the institutes there is generally a moderate laboratory tax to pay, but the volunteers have nothing to pay. The courses, lectures, and practical work take place chiefly at the Wiener Allgemeine Krankenhaus. Certificates of having attended the lectures and courses are obtainable, after certain formalities, from the Dean of the Medical Faculty. Further information may be obtained in a pamphlet written in German, English, and French, and supplied gratis on application to Messrs. Urban and Schwarzenberg, I., Maximilianstrasse, 4, Wien.

Reviews and Notices of Books.

With a Prehistoric People: The Akikúyu of British East Africa. By W. SCORESBY ROUTLEDGE, M.A. Oxon., and KATHERINE ROUTLEDGE, M.A. Trin. Coll. Dub. London: Edward Arnold. 1910. Pp. 392. Price 21s. net.

THE title of this work seems to us meaningless, or at least inaccurate, but the sub-title, "Being some account of the method of life and mode of thought found existent amongst a nation on its first contact with European civilisation," accurately defines the scope of the book. The district in which these people live may be said very roughly to be that lying between long. 34 to 38 East, and lat. 0 to 2 South, and a good deal of it is some 6000 feet above the sea.

In physical characteristics it appears to resemble the Bocage of Vendée, and in the same way as the Vendéens did, the Akikúyu managed to protect themselves from their adversaries. The Republican troops, it will be recollected, were quite at a loss in the labyrinths of the Bocage, and so, too, the Masai found themselves at a terrible disadvantage in the Akikúyu country, where all the trackways were mined with war-pits thoughtfully provided with sharp stakes. Nowadays, however, the Pax Britannica has put an end, more or less, to intertribal fighting, and only the old men remember the fate of enemies trapped in the pits.

Mr. Routledge and his wife have certainly produced a most interesting book, and they are specially to be thanked for one thing, in that they distinguish between what they saw and what they were told. The various sections of the book deal with arts and crafts, social and political life, religion, and folklore. They have only one way of making fire, and that by the friction of two pieces of wood. An unusual feature of this measure is that the piece of wood on, or rather in, which the fire-drill works is laid on a sword, and the hot dust escapes from the fire-stick on to the sword. "The particles forming the pile cohere, but do not smoke or glow. When the mound has attained to the size of a threepenny-piece it is found by experience that a portion of it, the size of half a pea, can be blown up into a solid red-hot ember." The dust is then surrounded by some dry grass, blown upon, and the grass catches fire. The process is curious, and it would almost seem as if the pile of dry grass occluded some gases and possessed the power of becoming hot that is known to be a property of black platinum.

Like all primitive peoples, the Akikúyu live under a most meticulous system of ceremonial and social customs. All the important periods of life have their own complicated etiquette, and Mr. and Mrs. Routledge describe the dances and other customs at length. The initiation ceremonies at puberty are most complicated, and include circumcision for the boys and removal of the nymphæ and clitoris for the girls. There are also special dances before the operation.

Another special dance is that held on the completion of the maize harvest. This dance is performed in the presence of a small clay image in human form, which may be either male or female. Mr. Routledge offers no explanation of this image, but we suggest that it is akin to the kern-baby or mell doll of Europe—that is to say, a representation of the corn spirit. On one point we must differ from Mr. Routledge. He says, as regards an image which he acquired, that it was a female, "the sex being indicated by the small triangular apron which custom amongst the Akikúyu requires even the youngest female child always to wear." We much doubt whether the triangular mark on the image had anything to do with clothing. The triangle is the universal mark in primitive images and drawings for the female sex, and it is obviously a representation of the mons Veneris. Plenty of examples are to be seen in the Babylonian room at the British Museum, where every stage of the device is seen

from the simple incised triangle shown in Case 25, No. 544, up to the more detailed markings shown in the series of Babylonian "Venuses" in Case 35, Nos. 969 *et seq.* Illustrations of similar images will be found in Menant's "Glyptique Orientale," Vol. I., pp. 172–3.

As regards religion, the Akikúyu believe in a Being, N'gai, who lives on Mount Kenia, and their conception of him is of a singularly elevated nature. Mr. Routledge witnessed a solemn sacrifice, followed by the usual communion, to N'gai. The animal chosen was a ram, and contrary to most sacrificial customs where an animal is the victim, it was strangled so that there was no shedding of blood.

The Akikúyu naturally have medicine-men, who, as usual, combine the offices of magician, medical practitioner, prophet, and in some sense priest. The name of a medicine-man is Mun-du-Mu-gu, which literally, according to Mr. A. W. McGregor of the Church Missionary Society, means "a clever man," thus carrying on the idea of knowledge which is apparent in the words "medicine," "medere," "Medea," and the Sanscrit root "madh." We should add, however, that Mr. Routledge says that "this"—i.e., the translation—"scarcely represents the idea conveyed, for the word Mugu is also used in connexion with the tree that is held sacred, Muti Mugu." We know all the same that the ideas of wisdom and healing have ever been closely connected, except among "Christian Scientists"; therefore, to our minds, Mr. McGregor's translation is quite defensible.

The medicine-men are initiated with great ceremony, but according to Mr. Routledge's informants the candidates are elected to their profession by a direct call from God in a vision or dream. This being so, we are not surprised to find that the Akikúyu have a simple method for dealing with heretics without the intervention of a General Medical Council or a Medical Register, for, as Mr. Routledge states with somewhat startling simplicity, "Irregular practitioners are poisoned." Akikúyu medicines are chiefly of the charm order, though remedies are given for gonorrhœa, hæmaturia, and diarrhœa. Surgery is not regarded as part of the medicine-man's function and is apparently simply confined to flesh wounds, which are treated in quite an orthodox manner and do very well.

The Akikúyu wear ornaments in the lobes of their ears, but instead of a simple earring the lobe of the ear is distended to an enormous size, as will be seen in the illustrations to the interesting paper by Mr. Bland-Sutton which appears on p. 1608. Other nations, notably certain South American tribes, have adopted an even odder method of decoration, for they insert cylindrical blocks of wood in their lips. Naturally, the rings into which the ear lobes are converted get torn occasionally and the native surgeons are clever at restoring them. The edges are refreshed and the ends are then joined.

Mr. Routledge and his wife end their book with a series of folk-tales, and they have earned the thanks of all who are interested in out-of-the-way customs and peoples for a carefully written account of a nation whose originality, we presume, is doomed to disappear under contact with civilisation. Mr. Arnold, the publisher, deserves every credit for the printing and the illustrations.

Fisiología General. Por los Doctores L. RODRIGO LAVIN (Cádiz) y A. PI Y SUÑER (Sevilla). Barcelona: Gustavo Gili. 1909. Pp. 810. Price, paper, 18 pesetas; cloth, 20 pesetas.

THE authors remark that the subject is so vast, even though this work is a treatise on "General Physiology," that collaboration is absolutely necessary, and so it comes that Dr. Lavin is responsible for the chapters on the general physiology of the cell and for the specific physiology of the nervous and secretory cells, while Professor Suñer deals with muscle and the internal media. After a general introduction much like that in other text-books, the work divides itself into three main divisions: (1) the physiology of the cell in general; (2) the physiology of differentiated cells; and (3) the physiology of the internal medium (a term used by Claude Bernard for the blood). This third part deals only with blood and lymph.

The first part occupies about 160 pages and deals with the morphology, chemistry, and physics of living matter—so-called vital phenomena,—metabolism and the exchange of energy, and, lastly, with changes of form. In the morphological part the protozoa come in for a fairly long exposition, the diagrams are bold and clear, and some of them have obviously been redrawn, with modifications, from well-known works. Then follows a general account of absorption and excretion, and the general metabolism of cells, all on the usual lines, including a good account of ferment action. Under exchanges of energy a general account of amœboid, ciliary, and muscular movements is given, and also of those phenomena which are grouped under the term "Tropisms." The last section of Part I., under the term "Cambio de forma," deals with the ovum, reproduction, ovogenesis, spermatogenesis, and heredity. Part II. begins with the neuro-muscular system and leads on to the consideration of reflex acts and to the general physiology of muscle and nerve, in which there is nothing to call for special notice. We are glad to see a figure (Fig. 160) of Marey's experiment on elasticity, to illustrate the importance of the elasticity of muscle. Waller's illustrations on electrical phenomena are freely laid under contribution and acknowledged. Under fatigue of muscle the modification of Mosso's ergograph by Treves is introduced, an apparatus not usually figured in English text-books. A very readable account is given of the general structure of nerve cells under the head of Neurons, as one would naturally expect from the countrymen of Ramon y Cajal. This leads on to the general physiology of nerve. The remainder of the work, about 200 pages, is devoted to the blood and lymph, considered as internal media. Some of the "figured elements" of the blood are well drawn, though no scale is given. Hæmolysins and immunity are dealt with shortly.

It will be seen that this book is a work on "General Physiology" in the most general sense. There is nothing about digestion, respiration, circulation, or the senses. There is only a list of contents and no index, which we think is a mistake. The work may meet in part the requirements of science students in Spain, but it is not suited for students of medicine, being too restricted in its scope.

Manual of Tropical Medicine. By ALDO CASTELLANI, M.D. Florence, Director of the Clinique for Tropical Diseases, Ceylon; and ALBERT J. CHALMERS, M.D. Vict. and Liverp., F.R.C.S. Eng., D.P.H. Camb., Registrar and Lecturer on Pathology and Animal Parasitology, Ceylon Medical College. With 373 illustrations in the text and 14 coloured plates. London: Baillière, Tindall, and Cox. 1910. Pp. 1242. Price 21*s.* net.

THIS volume, which is one of the publishers' "University Series," is dedicated by its authors to Sir Patrick Manson, as the accepted "founder of scientific tropical medicine." The object of the book, as stated in the preface, is to describe the knowledge which the writers found necessary to acquire and use during the course of their work in tropical Africa and Asia. Efforts have been made to keep the matter within as small limits as possible, and for this purpose all references to practical laboratory methods have been omitted. For this part of the subject the reader is referred to the standard text-books. The authors at the outset clearly state their opinion, with which we are in entire agreement, that it is little use for any medical man, however highly qualified he may be in

other respects, to attempt to practise his profession, at any rate nowadays, with any degree of success in the tropics without having first gone through a course of instruction in one or another of the Schools of Tropical Medicine.

The book is divided into three main parts. The first part, which is introductory, includes four chapters which give a short outline of the history of tropical medicine, with some observations on tropical climatology, the effects of tropical climates on man, and on the incidence of disease in the tropics. The second part deals with the causation of disease in the tropics, attention being directed separately to the physical, chemical, and biological causes. Under the physical causes, the pathological effects of high atmospheric temperatures are discussed. Among the chemical causes considered by the authors are tropical intoxications: poisons and poisonous weapons, poisonous foods, and venomous animals. In the 12 chapters, comprising 425 pages, which deal with the important subject of the biological causes of disease, the various kinds of animal and "vegetal" parasites are fully discussed.

About half of the volume is devoted to Part 3, which deals in detail with the diseases of the tropics. The authors adopt a classification which divides these maladies into three sections—viz., fevers, general diseases, and systemic diseases. Among the fevers are included malaria, plague, the kala-azars, the trypanosomiases, dengue, and yellow fever; among the general diseases are classed leprosy, the filariases, frambœsia, beri-beri, epidemic dropsy, and pellagra; while among systemic diseases are placed such varied ailments as ankylostomiasis, cholera, the dysenteries, sprue, and hill diarrhœa, as well as skin diseases. Some special consideration is given to these cutaneous maladies, seven chapters and a large number of illustrations being devoted to them. Classification of tropical diseases is, we admit, by no means an easy task, but we are not altogether sure that the plan adopted by the authors is quite free from objection. Considerable attention has been given to the clinical features of each disease and to treatment, details of which are set out clearly as regards dosage and methods of administration of remedies, on the ground that practitioners working in the tropics have often no opportunity of consulting works on therapeutics and materia medica.

A vast amount of pains and patience must have been required to collect and bring up to date the full and varied information which is presented to the readers of this book. Each chapter is furnished with a list of references to the authorities whose works have been consulted in connexion with the subject. So far as we are able to judge, the knowledge presented in this volume is sound, accurate, and up-to-date. Of course, here and there small points are noticeable in which more recent information has modified opinions, and this is unavoidable in a work on tropical medicine, advances in which are day by day taking place. It is probably for this reason that no mention appears to be made of the theory of the causation of beri-beri by an insufficiency of phosphorus in the diet, a theory which recent work in the Federated Malay States Institute for Medical Research and elsewhere seems to have placed on a solid basis. In the authors' view it is more probable that the actual cause will be found to be a protozoon than that it is due to diet. Some of the terms employed in this volume may be strictly correct, but they differ from those more commonly used by other eminent writers on tropical medicine. For example, it may perhaps be considered by some a trifle pedantic to write "agchylostoma" instead of ankylostoma, to which we have been so long accustomed.

This "Manual of Tropical Medicine" is a work which must in our opinion prove of great service to all who are practising, or intend to practise, their profession in the tropics, and we therefore, with entire confidence, recommend it for the purpose. The practical experience of the authors in this branch of knowledge lends additional weight to the views which they so well put forward. The book may be regarded as a small library in itself. Appended to the volume is a very full index, not only of subjects but also of authorities; this will greatly facilitate rapid reference to any disease concerning which information in respect of diagnosis, prophylaxis, or treatment may be desired by the practitioner in the tropics.

A Manual of Midwifery. By HENRY JELLETT, B.A., M.D. Dub., F.R.C.P. Irel., L.M., King's Professor of Midwifery in the School of Physic, Trinity College, Dublin; Gynæcologist to Sir Patrick Dun's Hospital; President of Obstetrical Section of the Royal Academy of Medicine in Ireland. With the assistance of W. R. DAWSON, M.D. Dub., F.R.C.P. Irel., Medical Superintendent, Farnham House, Dublin; H. C. DRURY, M.D. Dub., F.R.C.P. Irel., Physician to Sir Patrick Dun's Hospital; T. G. MOORHEAD, M.D. Dub., F.R.C.P. Irel., Physician to the Royal City of Dublin Hospital; and R. J. ROWLETTE, M.D. Dub., Pathologist to the Rotunda Hospital. Second edition. With 557 illustrations and 17 plates. London: Baillière, Tindall, and Cox. 1910. Pp. xiv.–1210. Price 21*s.* net.

IN the second edition of his "Manual," already so favourably known both to students and their teachers, Dr. Henry Jellett has inserted a new set of illustrations in the section on Obstetrical Anatomy and has also revised the text, more especially that dealing with the formation of the embryo. The emendations are distinctly for the better. We think the author does not lay enough stress upon the fact that the formation of the amnion in the human ovum does not follow the same lines as that in some of the other mammalia, and the possibility of the student not realising this, although it is stated in the text, may be increased by the introduction of Fig. 56, which probably does not represent the conditions obtaining in man. In the same way it would have been better if it had been stated that Fig. 61 refers to the ovum of the guinea-pig, but upon both points the student may expect to obtain guidance from his lecturers.

A new series of figures has also been added to illustrate the mechanism of labour. Some of these are very good but some of them do not appear to us to be wholly satisfactory. For example, we do not consider that either Fig. 181 or Fig. 217 represents truly what can be felt by the vagina in the four positions of the vertex or of the face, and indeed the former does not correspond to Figs. 185 and 186, which show the head in the same position. In the description of the mechanism of labour we find no mention of the fact that in all probability the so-called movement of flexion is of little importance, and probably should not be described as an integral part of the mechanism of labour and placed on an equality with the movement of internal rotation. Every frozen section of the first or second stage of labour, with the exception of that of Pinard and Varnier, which relates to a case of occipito-posterior presentation, shows the head with the chin on the sternum—that is, in a position of complete flexion. It is very doubtful, therefore, whether this movement takes place at all in a case of normal labour, and in a modern text-book we would have expected to find some mention of this fact, and we should not expect to find such a statement as the following without any qualification—viz., that during the mechanism of labour "the occiput is driven down until the chin comes into contact with the sternum." Further, in describing the causation of the movement of internal rotation, the author lays stress upon the action of the helical shape of the internal surface of the ischium, a factor which plays but a very unimportant part, if any, in the case of a normal pelvis. There is also no

mention of the view, supported by Schroeder and Olshausen, that the internal rotation of the head is initiated by the rotation of the body, nor is there any of the recent most important work of Sellheim, who maintains that internal rotation is the result of a definite physical law.

In a manual intended for students who are only too ready to follow new methods of treatment, often to the exclusion of old and better known ones, it was inadvisable to include a description of King's postural method of correcting transverse presentations, more especially as the author admits that he has no personal experience of this procedure.

The pathological anatomy of vesicular mole and of chorion epithelioma has been revised well by Dr. R. J. Rowlette. The three subjects of acute yellow atrophy, hyperemesis gravidarum, and eclampsia have been included in one chapter under the heading of the Toxæmias of Pregnancy; although, as Dr. Jellett points out, this does not imply that he is ready to adopt the view that all these conditions are only different phases of a specific toxæmia. In the treatment of eclampsia the important question as to operative interference is answered in the following way: the general practitioner is recommended to carry out expectant treatment as far as possible, but in view of the good results which have been obtained by its use the expert is advised to resort to the use of Bossi's dilator and to deliver the patient as soon as possible after the convulsions have begun. This appears to us to be sagacious advice in both directions.

A very good account has been added of vaginal Cæsarean section and a very fair one on pubiotomy. We cannot agree in the treatment of asphyxia neonatorum that Marshall Hall's method of artificial respiration is of any value; indeed, Champneys has clearly shown that in these cases it is markedly inferior to that of Silvester.

The great majority of the illustrations in the book are good, but we hope that in a new edition those illustrating the section on monsters may be redrawn, as they are poor and certainly not artistic.

We have been critical on many details in the work of Dr. Jellett and his collaborators because the work is a valuable and authoritative one demanding to be tried by a high standard. They have produced a good text-book, and as it represents the teaching of the Dublin school it has special interest for English readers. It is probable that the second edition will achieve as marked a success as the first, when the points to which we have drawn attention can easily be dealt with.

Die Vergiftungen. Von Dr. R. v. JAKSCH, o. ö. Prof. der Speziellen Medizinischen Pathologie und Therapie, Universität Prag. Zweite, vollständig umgearbeitete und vermehrte Auflage. Mit 42 Abbildungen. Wien und Leipzig: Verlag von Alfred Hölder. 1910. Pp. 732. Price, paper, M.16.

THIS is the second edition of a work which has always been looked upon as being among the leading works on poisons. The first 600 pages deal with the exogenous poisons, a very full description being given of the symptoms, pathology, diagnosis, and treatment in regard to every known vegetable and animal product which can give rise to toxæmia. A chapter is devoted to plant poisons which produce symptoms analogous to those which are commonly known to occur with certain primulas, and contains a good deal that is new and interesting.

Although the value of the chapters on the mineral and metallic poisons is much enhanced by cases which have been under the author's care and by a fuller description of the pathology, nothing new has been added, and the treatment remains the same to-day as that which was in vogue years ago. Several cases are cited of poisoning from drugs and chemicals very rarely used, but it is the mention of these which makes the book complete and so valuable for reference.

The chief feature of the new edition is the inclusion of a chapter on the effects of poisons, or endogenous toxins, caused by malignant growths and the various infective fevers. Besides the pathological conditions which can give rise to symptoms of intoxication, such intoxications can also be caused by the normal products of metabolism. In discussing the etiology of these conditions we are struck by the absence of any mention being made of anaphylaxia. This is all the more noteworthy since not only has very much attention of late been paid to this phenomenon, but also in our opinion it helps to explain the idiosyncrasies shown by different people to various drugs and articles of food; and not a word has been mentioned of the "serum disease," a disease which should always be borne in mind in this age of serotherapeutics. Certain poisoning effects of almost daily occurrence are undoubtedly due to various toxins, probably of a protein nature, which so act on the vaso-motor centre as to cause the various symptoms of vaso-constrictor paralysis—namely, urticaria, angioneurotic œdema, strophulus, and the like. The author very rightly points out how unavailing treatment is in general, and how very unlikely we are to get any better results until our knowledge has so far advanced as to be able to tell the chemical nature of the various toxins produced.

A more thorough study than has heretofore been attempted is contained in the description of the effects produced by the various plant and animal poisons. Especially interesting is the chapter on the toxins produced by photodynamic substances, since attention has been of late so much directed to the severe lesions resulting from the X rays. In the author's opinion some people show a marked idiosyncrasy to the X rays, the smallest dose being capable of producing an erythema, pigmentation, or even herpes zoster. Stress is laid upon the fact that a transient erythema may be followed, weeks or even months later, without a further application of the rays, by ulceration, showing that a toxin is produced which may remain latent for some considerable time. Since such can occur the greatest care must be taken in giving subsequent doses. Some interesting experiments are included which go to show that the X rays have a decided destructive action on the leucocytes without in any way affecting the red blood corpuscles, which would account for the improvement seen in cases of leukæmia treated with the X rays. The author observed that the skin of the back of leukæmic patients showed a marked predilection to injury by the rays, and that owing to the large dosage which these patients required ulceration was not uncommon. The difficulty was overcome by the insertion of a silver plate into the tube, which enabled an animal to be exposed to the rays for 18 hours without any untoward effect resulting, while a control animal succumbed from ulceration in a few weeks. In the treatment of X ray burns the permanent water-bath proved to be the most efficacious.

Full attention has been paid to the pathological changes produced by the various poisons, which must prove of great value to the medico-legal student. A good index is also appended. We can strongly recommend this book to every medical man, whatever his bent may be, as it will form an excellent work of reference upon a subject the literature of which is not voluminous.

LIBRARY TABLE.

The History of St. George's Hospital. By GEORGE C. PEACHEY. London: John Bale, Sons, and Danielsson, Limited. Part I. Price 2*s.* 6*d.* net.—For some years past the compilation of the history of St. George's Hospital has been in progress, and the first of the 12 parts comprised by the

work has now been issued. The history, we are told by the publishers, is treated in four sections as follows: (1) The first 20 years, 1733–53, which will contain a critical *résumé* of the origin and evolution of hospitals and medical schools in England; (2) St. George's as it was in the time of John Hunter, 1756–1793; (3) St. George's as it was in the time of Baillie, Young, and Brodie, 1793–1840; (4) St. George's as it was in the Victorian era, 1840–1900. The first part contains an epitome of the provision made for the sick poor in England from early times to the foundation of the Westminster Infirmary in 1719; together with a detailed account of the secession from Westminster to Hyde Park Corner in 1733. The second part will deal with Lanesborough House and its surroundings at the date of its transformation into St. George's Hospital, with contemporary illustrations; and subsequent parts will treat of the general management of the hospital, the medical, surgical and nursing staff, medical education, &c. Each part will consist of about 50 pages, crown quarto, with marginal- and foot-notes and illustrations. An index of contents will be issued upon the completion of the work, copies of which may be obtained by application to the author, Mr. George C. Peachey, 11A, Oxford and Cambridge-mansions, London, N.W. Part I. tells of the early guilds, the monasteries, the chantries, the leper hospitals, and the charitable foundations. Then came Sir Richard Gresham, the Lord Mayor of London, who petitioned King Henry VIII., with the result that in 1553 the five Royal hospitals of St. Bartholomew, Christ, St. Thomas, Bethlehem, and Bridewell came under the power of the Lord Mayor and commonalty of the City of London, who were incorporated by charter as perpetual governors of them. The measures taken during Elizabeth's reign are detailed; then there is a jump to the year 1714, when the proposals of John Beller, a Quaker philanthropist, are discussed. In 1715 the Westminster Infirmary is noticed under the heading of the Westminster Charitable Society, which in 1719 took premises in Petty France, but in 1724 was moved to Chapel-street, Westminster, and in 1733 found occasion to vacate those premises as they were still too small, and it was then (Oct. 19th, 1733) that there was a secession of the minority of the medical staff. This group of physicians preferred the higher part of Westminster to the lower and formed themselves into a new regular society and migrated to Hyde Park Corner to the premises leased to them by Mr. Lane called Lanesborough House, where the general meeting of the new society was held for the first time on Nov. 2nd, 1733. There was printed "An Account of the Occasion and Manner of Erecting a Hospital at Lanesborough House, near Hyde Park Corner. Published by order of the General Board of Governors there, Wednesday, Feb. the 6th, 1733." It was ordered that 1500 copies of this account should be printed, none of which has come to light, the copy of the account now printed in the present history being transcribed from the minutes of the Westminster Infirmary. Some critical remarks upon this account were published by a Westminster subscriber, enabling the merits of each side to be judged even now. This was the beginning of St. George's Hospital, Hyde Park Corner, Westminster, and it is all set out in interesting detail in the first part of Mr. Peachey's book. The compilation has obviously entailed upon him much research among public records and private muniments, and he may well command the support of St. George's men past and present, as also of those generally who take an interest in hospital affairs.

The Transactions of the Edinburgh Obstetrical Society. Vol. XXXIV. Session 1908–09. Edinburgh: Oliver and Boyd. 1909. Pp. 383.—The Transactions of the Edinburgh Obstetrical Society for the session 1908–09 contain a number of excellent papers. The Presidential address was given by Professor W. Stephenson, who took for his subject "Our Four Forefathers in Midwifery," and gave an interesting account of the work of Smellie, William Hunter, Denman, and Burns. Among the more important of the papers relating to obstetrical subjects which were read during the year were the following: Prematernity Hospital Practice, a series of 30 cases of morbid pregnancy treated in the Royal Maternity Hospital during the autumn quarter, 1908, by Dr. J. W. Ballantyne; Renal Decapsulation in Puerperal Eclampsia, and a Short Experience of Scopolamine-Morphine Narcosis in Labour, by Sir J. Halliday Croom; the Anatomy and Histology of the Pregnant Tube, by Dr. James Young; A Plea for a Rational Puerperium, by Dr. F. W. N. Haultain; and a paper on the Value of Manipulative Action Combined with Axis Traction in the Use of the Forceps, by the President. Among the more important of the papers relating to gynæcology is one on the Physiological Conditions Relative to the Conservative Surgery of the Uterus, Tubes, and Ovaries, by Mr. E. W. Scott Carmichael, and a paper on the Complications and Difficulties in a Series of 250 Ovariotomies, by Dr. J. Munro Kerr. A series of interesting papers, all from the pen of Dr. D. Berry Hart, include the following: The Interpretation of the Porro Uterus in Relation to the Third Stage of Labour, the Nature and Cause of the Physiological Descent of the Testis, the Physiological Descent of the Ovaries in the Human Fœtus, and Mendelian Action on Differentiated Sex.

Bacteriology for Nurses. By ISABEL MCISAAC, Author of "Primary Nursing Technique," &c. New York: Macmillan. 1909. Pp. 179. Price 5*s.* net.—It is now thought by some that a course of bacteriology should form part of a nurse's training, and the standard works on nursing now include chapters on this subject. That the course should include practical work seems also desirable, but it is to be feared that the nurse's curriculum will shortly be as congested as that of the medical student. The author puts the case for a knowledge of bacteriology extremely well. She points out that "the nurse cannot protect herself nor others from contagious matter if she does not thoroughly understand the sources of infection, the methods of transmission, and the means employed to prevent it. Without a working knowledge of the technique of bacteriology she can neither grasp nor practise aseptic surgical technique, which in its elaborate detail appears nothing short of an absurdity to the ignorant, but to a nurse well trained in first principles and daily routine it becomes an instinct—as much a part of her life as the instinctive avoidance of fire or any other dangerous element." The book gives a clear and accurate, if elementary, account of the bacteriology of the most important infectious diseases, with special insistence on methods of disinfection, and the dangerous sources of infection in each disease. In most respects, however, the book follows very closely the lines of the average text-book of bacteriology for medical students and is but little modified to suit the special point of view of the nurse. The temperatures at which organisms are destroyed are so important to the nurse that very clear and even dogmatic statements are desirable on this subject, with emphasis on the fact that safe sterilising temperatures are considerably higher than those at which death of an organism takes place under special experimental conditions. The statement that spores "possess an extraordinary resistance to heat (70°–100° C.)" would be liable to produce some disastrous results if acted upon. The author appears to have accurate views as to vaccines and protective sera, and yet speaks of Haffkine's plague serum and of Pasteur's protective inoculation serum in hydrophobia. The book is well printed and attractive in appearance, and should prove of value to those readers for whom it was designed.

THE LANCET.

LONDON: SATURDAY, JUNE 11, 1910.

Hospital Sunday.

TWELVE months have gone by since last the Metropolitan Hospital Sunday Fund made its annual appeal to the public. Those who lead busy lives in London find that weeks and months slip by almost unnoticed, and many are realising almost with a shock that Hospital Sunday, which is a mark in the calendar of the charitable year, has come round once more, and that again they are being asked to help, as they have done so effectively in past years, in the fight of the poor man against pain, disease, and death. This fight is waged in our hospitals directly on behalf of a mass of helpless persons mostly drawn from the poorer districts of the metropolis, but indirectly on behalf of all those afflicted by bodily disease throughout the world. The struggle has gone on without intermission and with but little change in its general aspects during the past year. The medical inspection of school children has certainly introduced new problems into hospital administration, but has in no way changed the fact that all these charities need the open-handed aid of the public. But if there has been no change in the scientific or social work of the hospital during the year just gone, there is a great difference between the circumstances in which this collection is being held and those which have marked other years. If the collection of the present year had been held but a few weeks earlier it might have been recorded that, beyond a certain degree of political uncertainty and unrest, there was little to distinguish the season from its predecessors—little, that is to say, that concerned the hospitals of London, or that was likely to affect the collection made on their behalf by the Metropolitan Hospital Sunday Fund. Even now we find it hard to realise that which has taken place but little more than a month ago, and to gauge in its relation to the details of our civic and social life the magnitude of our national loss.

KING EDWARD VII. is dead, and, as we glance at the congregations assembled in the places of worship where collections for the Fund are made, we shall not be likely to forget that the gaiety of a London season has given place to a period of universal mourning. Let us also remember that the hand of death has not only removed a beloved sovereign from his people, but that in him the hospitals of London have lost a friend whose powerful influence on their behalf it is not easy to estimate. So much has been written in these pages and in others as to the late KING'S active interests in the results of medical research, in the welfare of his people, and in the part played by the hospitals in promoting that welfare, that these topics need not be dwelt upon at any length. It will be recalled, however, that his benevolence was not only shown in visiting the wards of individual institutions or in contributing to their resources, but in endeavouring, by the aid of his personally demonstrated good will, to strengthen the financial position of the hospitals of London as a whole. King Edward's Hospital Fund is a lasting monument of the kindly sympathy of him whose name it bears and of that business-like insight into, and appreciation of, good work done which were characteristic of him. As the result of that insight and appreciation the distribution of King Edward's Hospital Fund followed the lines which those managing the Metropolitan Hospital Sunday Fund had devised primarily for their own guidance, and no greater tribute could have been paid to the organisation of the older Fund of which KING EDWARD, then PRINCE OF WALES, had become a vice-president in 1895.

Truly in KING EDWARD the hospitals of London have lost a staunch and helpful friend, and if we remind the public of that loss we do so because we know it to be a very real one. To his successor we look with confidence for that aid in the future which his Royal father accorded in the past, but we are now dealing with the actualities and necessities of the current year. The collection for 1910 is being made during a period of mourning imposed upon all by their personal feelings and by Royal command. Many of those attracted as a matter of fashion and habit to London by the amusements which ordinary summer seasons provide are absent from it, seeking recreation elsewhere. The Metropolitan Hospital Sunday Fund collects the pence of the poor, and the sum of the offerings of those whose individual contributions are necessarily small forms a large proportion of the total amount recorded in each year. It cannot, however, dispense with the gifts of the wealthy, and if any of those who usually give on Hospital Sunday are absent on this occasion because the season's gaiety is gone, we cannot believe that on this account they will allow a cause which he had at heart to suffer loss. Let them rather remember his goodwill towards his subjects, the unfailing sympathy which he ever evinced for those who suffered in helpless poverty, the high value that he set upon the work of charity which the hospitals of London struggled to perform, and his frank recognition of the fact that that struggle was carried on in circumstances of financial difficulty. Relying upon the coöperation of his revered mother's subjects, and afterwards when their allegiance was transferred to himself, he made the cause of the hospitals of London his own, and the appeal is now to all those who were his subjects, both rich and poor, to do their utmost that in this season of mourning the collection of the Metropolitan Hospital Sunday Fund may not fall below its highest totals in the past. Let them give for the sake of the poor whose only hope of relief is in the hospitals, and let them do so with added generosity as a tribute to the memory of their dead KING, who himself knew well the meaning of bodily suffering, and who himself unceasingly, by his words and acts, showed his goodwill towards the great charitable institutions of which London and the nation are so justly proud.

On an occasion such as this we do not address ourselves to our usual readers. Upon the members of the medical profession there is no need to impress the fact that the hospitals do their good work up to the utmost limits of incomes not only insufficient but precarious, and it is not

to our medical readers that we appeal to extend those limits or to mitigate the anxiety of those upon whom the uncertainty of financial resources presses heavily. It is to a wider public that we turn on Hospital Sunday when we urge the great mass of our fellow citizens to consider what it is that the hospitals do and endeavour to do, and the ceaseless struggle in which they are engaged. Those who read our words see around them a London so vastly changed from the mother city of a century ago, when its great hospitals, or many of them, were already in existence, that it would be absolutely unrecognisable by those who knew it then. Those familiar with it 50 years since would mark a great difference if they were to revisit it to-day for the first time. Even in the last 25 years it has changed considerably. Its houses have spread and their character alters; its buildings are demolished and rebuilt; but its commerce still ebbs and flows through its streets, its docks, and its railways, while from its manufactories and exchanges its merchandise circulates the world over. As the result of this huge turmoil of labour from manufactory and railway, from dock and street, from crowded court and insanitary slum, there flows into the hospitals a ceaseless stream, an ever-growing throng of those injured by accident or struck down by disease as the direct result of their struggle to live by the work of their hands. And it is not only because the number of those needing medical and surgical aid grows greater that the task of the hospitals increases. It is because the work which the hospitals have achieved has been good in the past that they are asked to do more in the present, and there is no prospect of aught but increased toil for them in the future. They have widened their own field of labour by the explorations of science. They have trained the hands and brains of those who now save life or limb where within the memory of living man death alone would have relieved the sufferer. They restore the worker to his family where before he must have left them to starvation or to dependence upon charity, and as the result their own daily routine of duty which must be performed grows, and their anxiety lest financial stress should cause them to fail in its performance never diminishes, even though their incomes may appear to the public to be augmented substantially. There are more patients for the hospitals to deal with from year to year, not only because London grows, but because, owing to the progress of medical science, more can be done for them. Let those who are asked to give to the Metropolitan Hospital Sunday Fund remember this, and let them apply it to themselves and to the need that some day may fall upon them. It may be their lot to have recourse to the physician or the surgeon in time of bitter necessity. They can do so in the confident hope of effective aid where their fathers would have had no alternative but to face death. They may have to trust to medical science or to the skill of the surgeon to save their lives, or the life of one dear to them, when but for the work done in the hospitals there would have been no power to help them. It is to enable the hospitals of London to maintain their progress and to extend it, to do the work they have done and to increase its efficiency, that the appeal of the Metropolitan Hospital Sunday Fund is made, and is made to rich and poor alike.

In truth it is not only for alms to be expended upon the individual that we ask when we urge upon the benevolent the claims of the hospitals of our great city. During the past year attention has been constantly and insistently drawn to the importance of securing and maintaining the health and strength of the worker, not only so far as he and his immediate relatives are concerned, but for the general benefit of the community. For this awakening of the public mind to the consideration of the physical health of the people the inquiry held by the Royal Commission on the Poor-law is responsible, and in this connexion the question is often asked as to how far legislation upon the lines of the Commission's report would be likely to change the status of the voluntary hospitals by securing sufficient provision for the sick and injured poor in rate-provided institutions. The answer is that the report of the Commission, commonly known as the "Majority Report," devotes considerable space to suggestions which if carried out should increase the usefulness of voluntary hospitals by organising the service of charity, by preventing the overlapping of the work of voluntary and State-aided institutions, and by removing from the hospitals more effectually than now is possible those patients who should properly be treated at the expense of the public funds. Somewhat similar results might be expected to follow if legislation were to take place upon the lines laid down in the "Minority Report," with the difference that the latter seems to contemplate a greater enlargement of the public medical service than the first-mentioned document, a more complete departure from the existing methods and standards, and, as a possible result, a diminished scope for voluntary aid in medical as well as in other forms of charity. This is not the place to discuss the relative merits of the two reports from a medical point of view, or whether there is any immediate prospect of either being adopted in its substance by Parliament; and it is sufficient to say that in the light of neither report, nor of the discussion which has followed their publication, can be seen any likelihood that the great voluntary hospitals and the work they are achieving will be ignored or can ever be dispensed with. It should be pointed out that Poor-law legislation, when it takes place (which as far as present indications go will not be immediately), will be undertaken for the public good of the whole of the United Kingdom, and will include large areas where the medical aid provided for the poor stands in urgent need of improvement, and where the question of such aid is affected but little, or not at all, by the existence of voluntary hospitals.

The voluntary hospitals of London are not local but national institutions, and their municipalisation would be attended by a limitation of their benefits to the community not likely to be contemplated seriously by the legislature in our times. They open their doors without consideration of county or borough boundaries or of qualifications of settlement, as they do without distinction of nationality, creed, or character. They give their aid freely, having regard only to the physical need and poverty of the applicant, and are limited in their work of benevolence only by their

own inability to supply more than that which the generosity of the kind-hearted enables them. Upon that generosity the Metropolitan Hospital Sunday Fund relies for its existence, and in endeavouring to bring home its claims to all who read these words we would lay stress on these points. That they should give, and give freely, not confining themselves to any sum which they may regard as their usual Sunday offering, but making this particular Sunday one of unusual significance. That they should make it an occasion for an act of self-denial, if such be necessary, in order that the hospitals may profit. A pleasure or a luxury foregone should render the giving a more pleasant subject of reflection for the giver. That they should give in any event, whether attending worship in the metropolis or not. We have spoken above of those absent from London during the present season. Let them and let all who leave London, whether for a longer or a shorter period, not forget to forward their contribution if they do not attend divine worship where a collection on behalf of the Fund is made. And givers should remind others to give, so that none may forget, and so that all, both young and old, may be unable to plead any excuse based upon ignorance or thoughtlessness for not contributing to the best of their ability. Upon children no less than upon their older relatives we urge the duty of giving and of reminding others.

The Publications and Work of the Research Defence Society.

THE annual meeting of the Research Defence Society was held on Friday last, June 3rd, and was a well-attended and important affair. The proceedings, as well as a valuable address by Sir DAVID BRUCE, will be found fully reported in our columns this week (see p. 1635), and we propose to confine our remarks here for the most part to notice of the publications of the society. This society was founded only a little more than two years ago with the object of making the truth about experiments on animals known to the general public. The opponents of vivisection have until recently had matters very much their own way. They have made statements sometimes resting on a basis of fact, and sometimes dependent merely on imagination, and the public have received these statements and have only too often accepted them and the deductions made from them as absolutely true. For more than 30 years the societies which oppose vivisection have endeavoured to persuade those who knew nothing much about the matter that the men who perform physiological and pathological experiments, and employ animals for this purpose, are in the habit of torturing them. The Research Defence Society endeavours by lectures and by pamphlets to make known widely the objects of these experiments, the value of the experiments themselves, and the beneficial results which flow from them. The pamphlets issued by the society are many, and those who read them cannot but admire the spirit of moderation with which they are written. The claims they make, that benefits have followed from these experiments, are in every case well within the truth, and they must serve to carry conviction to unbiassed minds.

All who know anything of the real truths of modern medicine appreciate the vast importance of the advances which have been made within recent years in the treatment of diphtheria, and one of the leaflets issued by the society deals with diphtheria and its antitoxin. It points out the nature of diphtheria and the serious results it produces, and it shows how many lives were lost in days gone by. It explains how the antitoxin is prepared and how experiments on rabbits and horses led to its discovery, and lastly it shows the enormous benefit that has resulted from the employment of antitoxin in cases of this disease. It is a very temperate statement and should prove useful in making more widely known the nature and value of diphtheria antitoxin. Another leaflet deals with inoculations. It is often urged by writers in antivivisection literature that an enormous number of experiments on animals is performed every year in this country, and they quote the returns of the inspector under the Vivisection Act as a proof of the great number of experiments made, but they do not take the trouble to explain, and it is possible that even they themselves do not know, that 97 per cent. of all experiments on animals consist of inoculations, together with a few experiments for the testing of drugs or food. The leaflet explains the very painless nature of an inoculation, that it cannot with any justice be called an operation, and proves that it is absurd to speak of many thousands of operations on living animals being allowed by the law. The leaflet quotes a good instance of the misuse of the word vivisection as applied to some of the experiments. During 1908 12,500 experiments were made on behalf of the Royal Commission on Sewage Disposal. These experiments were made on fishes or their eggs to test the purity of water. Surely it might have been thought that the most rabid antivivisectionist could not have objected to these experiments, seeing the possibly incalculable life-saving that might result from them, yet, under the present Act of Parliament, every one of these 12,500 experiments on eggs and fishes has to be reported to the Home Office as an "Experiment on the living animal calculated to cause pain," and the antivivisectionists cry, "Look at the increase in the number of vivisections in this country." Even when a real vivisection is performed, and it must be remembered that only 3 per cent. of all the experiments on animals in this country are cases of real vivisection, the animal must during the whole of the experiment, save in very exceptional circumstances, be under an efficient anæsthetic, and if the pain is likely to continue after the effect of the anæsthetic has ceased it must be killed before it regains consciousness; otherwise it may be allowed to survive the operation, but even then if pus should form the animal must be killed. The law cannot be called inhumane, and we wait with confidence in this direction the long-delayed report of the Royal Commission on the subject.

Another pamphlet deals with charges of cruelty recently made against the Rockefeller Institute of New York. In the early part of last year the New York Antivivisection Society brought various charges of cruelty against the Rockefeller Institute, but unfortunately for the society the witnesses on whom they relied were hardly trustworthy. The chief witness was a scrub-woman, and she stated under oath that

employment in the operating-room was very distasteful to her because of the cruel way in which the animals were treated. Therefore it is interesting to note that she caught and took in a bag to the institute the pet cat of her neighbour and offered it for sale for 35 cents. The offer was declined. The other two witnesses were ex-employees discharged for sufficient cause, and an examination of their charges proved their lack of foundation. Another pamphlet, which should prove of great interest to the non-medical public, gives an account of a visit by a lady to the Lister Institute of Preventive Medicine. In it she tells what she saw and describes the kind of work which is done there, and she explains some of the benefits derived from the inoculations and experiments performed. We need not say much of the leaflet dealing with the "Brown Dog," and will merely mention that it gives a dispassionate account of the facts. One of the most striking of the pamphlets deals with recent surgical progress, and is written by Professor W. W. KEEN, the famous surgeon of Philadelphia. In this reprint from *Harper's Magazine* Professor KEEN shows how greatly recent surgical progress has depended on experiments on animals. He refers especially to the surgery of the heart and the blood-vessels. The transplantation of organs is just at its beginning, and it is only by suitably chosen experiments on animals that the best direction of effort can be certainly discovered. Lord CROMER, in his forcible speech at the meeting of the Research Defence Society, laid stress upon one of Professor KEEN'S points that in all the years during which the antivivisection societies have existed the opponents of experimental research have done nothing but stand in the way of progress; not a single human life has been saved by their efforts, not a single household has been made happy, not one disease has had its ravages abated.

That some sort of control should be held by the law over experiments on animals may be allowed, but the endeavour of the present day is not only to hamper these experiments, but to vilify the operators, and to try to throw discredit on the results which their discoveries have given us. We believe that in this matter the public will judge rightly, if they know the truth; and the work of the Research Defence Society is to bring before those who, directly or indirectly, can affect legislation the truth of the matter, the facts of vivisection, and the results that follow. To Lord CROMER, the Hon. SYDNEY HOLLAND, and especially Mr. STEPHEN PAGET, the public owe a debt of gratitude for their ungrudging labour and zeal in the cause of humanity.

Biological Analogies in History.

MR. ROOSEVELT'S Romanes Lecture, delivered in the Sheldonian Theatre, Oxford, on Tuesday last, had a great reception. It is inevitable from a political point of view that some of the ex-President's breezy pronouncements should not find favour in this quarter or in that. He is a critic at large, and some of the criticised may not feel quite certain that he possesses all the equipment necessary for his inclusive scope; he speaks from the heart and has not hesitated in the cause of truth to say many unpalatable things. Moreover, his style of oratory, his methods of argument, and his messages of advice are all extremely simple; it is not possible for those who have been reproved to mistake the meaning of his words, or to attribute to him any views save those which he has enunciated. The same qualities of clearness and simplicity, which have characterised his oratorical deliveries throughout his tour, were present in his Romanes Lecture, and here, being applied to a subject eminently scientific in its nature, they will have secured for him the support of the medical profession.

It is impossible to define in exact terms the extent to which the facts of biology can be employed as aids to the interpretation of history, or to say what help the study of biology can be to those who are attempting to arrive at a solution of the racial and social problems of to-day. It is certain that many scientific philosophers would make very poor proconsuls, and, though it cannot be denied that many professional diplomatists are practical failures, no one would advocate replacing a Foreign Office official by a microscopist. But the methods of science are none the less the methods that will have to be applied in the future to the development of States. There are quite strong analogies between some of the groups of animal life and the national entities of history. The changes which are known to have occurred in certain biological families can be compared, as Mr. ROOSEVELT pointed out, with those seen in the civilisations which have at different times spread over the world's surface, struggling, rising, falling, and disappearing. Just as a species may become extinct either by dying out or by undergoing such complete modification under changing conditions that it loses its original identity altogether, so human societies disappear or rise to prominence, develop changes, and specialise to such a degree as to bear but slight resemblance to their prototypes. Admitting this, it becomes obvious that in order to obtain any adequate knowledge of the life of a certain nation methods as scientific as those adopted in the study of the life and habits of a biological species ought to be employed.

Mr. ROOSEVELT emphasised this necessity in saying that history should be treated as a branch of science—as a scientific record by which we can appreciate the successes and failures of various experiments in the past, and learn from them how to shape our course in the future. But at the same time he insisted that history should also remain a branch of literature. Here we are entirely in agreement with Mr. ROOSEVELT, but he is making a large demand; for a scientific history to be useful ought to be quite intelligible to persons of ordinary education, and the writing of such works would be very difficult. Knowledge, minute and general, is what the world really wants, and that knowledge must be acquired on scientific principles. Those who administer the affairs of alien nations deal with people about whom they really know very little and about whose history they know less, yet the whole development of the world is a matter of inter-relation between aliens. As the biologist examines an animal whose habits he wishes to find out, so the rulers of various nations must make scientific examination of the history and habits of the alien nations whom they aspire to rule. And for their guidance a literature containing the proper blend of history and science will be invaluable—but it remains to be written.

Annotations.

"Ne quid nimis."

GOVERNMENT SUBSIDIES FOR SCIENTIFIC RESEARCH.

IN connexion with the annual grant voted by Parliament in aid of scientific investigations concerning the causes and processes of disease, Mr. Burns, the President of the Local Government Board, has authorised the following special researches:—

1. A continuation of an investigation into protracted and recurrent infection in enteric fever, by Dr. Theodore Thomson, medical inspector of the Board, in conjunction with Dr. J. C. G. Ledingham of the Lister Institute.
2. A continuation of an investigation into protracted and recurrent infection in diphtheria, by Dr. Theodore Thomson and Dr. C. J. Thomas.
3. A continuation of an investigation into flies as carriers of infection by Dr. S. Monckton Copeman, medical inspector of the Board, in conjunction with Dr. G. S. Graham-Smith and Mr. Merriman of the University of Cambridge, Dr. Nicholl of the Lister Institute, and Dr. J. M. Bernstein of the Bacteriological Laboratory, Westminster Hospital.
4. A continuation of an investigation on the injurious gases evolved during artificial illumination, by Dr. J. Wade, D.Sc., of Guy's Hospital.
5. A preliminary inquiry into the relationship of certain special types of bacteria to the diarrhœa of infants, by Dr. C. J. Lewis of Birmingham, Dr. Sheila M. Ross of Manchester, Dr. Thomas Orr of Shrewsbury, and Dr. R. A. O'Brien of the Lister Institute.

The researches subsidised by Government are all, it will be seen, of the exact type to which public money should be devoted. Their aim is to improve the public health in the largest sense, a remark which especially applies to the new inquiry dealing with the diarrhœa of infants, that appalling scourge of the newly born.

NE QUID NIMIS IN ATHLETICS.

FRANCE, and more particularly Italy, should ponder well the saying of Talleyrand, "surtout point de zèle" in the new departure they are both taking in the field of athletics. Hitherto neither country has shown much liking or aptitude for the games so high in favour with ourselves—the fencing saloon or the pistol gallery absorbing the time devoted in England to cricket or football. Now, however, both Italy and France are taking kindly to these *al fresco* pastimes, football especially, and the press, Italian as well as French, is week by week recording the matches of rival teams with a fulness and a zest that imply a growing interest in the game bidding fair to equal that entertained by the country of its origin. The last notable encounter of a French with an Italian "squadra" (team) took place the other day at Milan, when the latter came off the victor, amid a scene of the wildest enthusiasm, by six goals to two. So far both countries are to be congratulated on their adoption of a game which, in the opinion of such medical authorities as Professor Mosso of Turin, who is said to have introduced it to his compatriots, is fraught with benefit to the youth already so proficient in its practice. But there are other forms of athletic pastime by no means so salutary to its young votaries—we mean the bicycle contests "round Italy," in which the palm is won by the performer who can combine speed with endurance over the greatest number of miles. The second "giro d' Italia" has just come off and the state in which the young competitors were seen by an eye-witness to arrive at his "coign of vantage" between Ancona and San Benedetto del Fronto was such as to evoke the greatest misgivings as to the results of the competition on its participants. "Those youths," he says, "who, either singly or in groups, reached that intermediate stage, exhausted and panting, were stretched on tables on which they rocked and shifted uneasily in distressing dyspnœa, hardly able to write the signatures required of them by the conditions, their sign-manual being all but illegible. Semi-comatose or seemingly stunned, as by the blow of a mace, they offered a spectacle truly pitiable, inspiring the beholder to lose no time and spare no effort in denouncing such competitions as unworthy of a civilised people. So practised, bicycling must prove disastrous to youths who are tempted to compete in those matches by the prospect of gaining a few thousand francs—at what an inevitable risk to future health and life itself one shrinks from contemplating!" An appeal is made to the press not to hold out prizes for such competitions, but on the contrary to use its influence in discouraging them by giving publicity, under authoritative medical names, to the lesions, profound and permanent, incurred even by the most robust of "corridori." The passion for athletics, now at high pressure throughout the Latin countries, may be an inestimable advantage to both—only, however, in the degree in which it is rationally utilised and not allowed to degenerate into "Marathons" and "giri d' Italia" resulting in over-strain or premature impairment of what the older physicians called "the tripod of life."

PATHOLOGICAL ASSASSINATION.

IT is a question if a parallel can be found among Western nations or savages at large to the use of the "larang," which means in the Malay language "the forbidden," and is used in Southern China and the Malay countries, such as Sarawak, for purposes of assassination. Mr. W. H. Battle, in his recent oration on Internal Injuries delivered before the Medical Society of London, exhibited a larang belonging to Dr. White-Hopkins, who has been resident for some years in Sarawak.[1] In shape the instrument resembles an iron dagger, and it is probably made out of a large timber nail, to which, with the aid of twine, an ornate curved cross-piece is fitted. The head of the nail is held so as to protrude from the loose sleeve of the malefactor who uses it. A stroke from this nail on the abdomen of a victim frequently brings about the latter's death from ruptured spleen, the calculation of Chinese assassins being that some 90 per cent. of those they attack are suffering from splenomegaly due to malaria. The nearest approach to this truly fiendish form of assassination discoverable in the annals of legal medicine is murder by infection. In a case now *sub judice* in Russia a suspicious death is attributed to subcutaneous infection by cholera virus. Quite recently also a medical man, Dr. Clarke Hyde of Kansas City, has been condemned to imprisonment for life for the murder of three victims, who with eight others he is supposed to have infected with the virus of typhoid fever. This, we think, must be one of the first instances of a culture of a pathogenic germ being used for criminal purposes. It is, as the writer points out, a method capable of great extension, and likely to trouble the medical legists of the future, though fortunately its use will be necessarily restricted to persons with some knowledge of bacteriology. Among primitive peoples the belief in murder by infection has often been entertained—as, for instance, by modern Russian peasants, who accuse medical men of deliberately spreading (on the principle of breaking windows to do good to the glaziers) the disease they have been striving to prevent. Then there are the historic cases of the plague-poisoners of Milan and Geneva, who in the seventeenth century were accused in numbers of disseminating the plague with the help of poisoned ointments, infected clothes, and so forth, in the interests of nurses and all the other employees of epidemics. Searching in works of travel one finds sometimes isolated cases of explorers being apparently allowed to die by sledge-drivers, guides, and others who have been interested in the loot of their master's property, and these

[1] THE LANCET, May 28th, 1910, p. 1475.

cases are analogous, as the murder is done by enlisting the services of disease. Thus, in Dr. J. J. Hayes's "The Open Polar Sea," the death of a Mr. Sonntag is described, who, when manifestly suffering from a chill during a long sledge journey, was nearly drowned, and died presumably of cold shortly afterwards. The Esquimaux driver who was with him gave an unsatisfactory account of his death, and Dr. Hayes implies that foul play was suspected. The larang users, however, with their knowledge of a pathological condition and their calculation of probabilities, are easily ahead of all other competitors in iniquity.

THE DEVELOPMENT OF TRYPANOSOMES IN TSETSE FLIES.

THE Sleeping Sickness Commission sent out in 1908 to Uganda, under the leadership of Sir David Bruce, has recently presented another interesting and valuable report which has been published in the Proceedings of the Royal Society, on its experimental work in connexion with the development of trypanosomes in tsetse flies. These experiments were undertaken to study the development of Trypanosoma gambiense, as well as of T. dimorphon, T. nanum, and T. vivax in Glossina palpalis. In each instance the experiment with T. gambiense was carried out in the same manner, the tsetse flies being fed first for some days on highly-infected monkeys and afterwards on healthy monkeys. As T. vivax does not affect monkeys, cattle and goats were substituted in the experiments with this parasite. At first only wild flies captured on the shores of Lake Victoria Nyanza were used, since there seemed to be an inexhaustible supply of them. But later, when experience had shown that about one fly in 400 or 500 of these wild flies was naturally infected, it was thought that their employment might lead to error. Therefore a second series of experiments were carried out with laboratory-bred flies, hatched out mainly from pupæ collected on the sandy shores of the Sesse Islands in the Victoria Nyanza. Numerous observations have shown that there can be no hereditary transmission of trypanosomes in the Glossina palpalis; nor has any evidence been found to prove that these flies can become infected with any flagellate by means of contact with other flies, or through fouled cages. Any trypanosomes, therefore, which may be discovered in a laboratory-bred fly must be considered as having been derived from the infected animal on which it has been fed. With the wild or lake-shore tsetse flies 14 experiments were carried out, 1840 flies being employed, none of them being naturally infected at the time they were captured. In seven of the experiments, involving the use of 880 flies, an average of 126, the results were positive; in the other seven, 960 flies, or an average of 137, were used with negative results. The shortest period before a fly became infected was 18 days, the longest 45, and the average 32 days. Of the 1840 wild flies thus employed only 16 were found to have become artificially infected with T. gambiense, or at least had flagellates in their gut. With regard to the results obtained with laboratory-bred tsetse flies, 42 experiments were carried out, 34 of them being negative and only eight positive. In the eight successful experiments 371 flies were used, an average of 46. The shortest time that elapsed before a laboratory-bred fly became infected was 27 days, the longest 53, the average being 36 days. Some curious results were occasionally noted. For example, at the end of one experiment 12 flies survived and were submitted to dissection and careful examination, none of them, however, being found infected; but they were "pooled" and injected into a healthy monkey, with the result that it developed sleeping sickness. It therefore appears possible that infection in the fly in certain circumstances may escape detection by the ordinary microscopic methods. In several instances flagellates were found in the gut of the flies, but these did not convey infection to the healthy monkey on which they fed, nor did injection of the fluid from the gut of these insects give rise to any positive result. So that from this it appears possible for some flies, although themselves infected, to be unable to convey the infection to the animals on which they feed. In these latter series of experiments 746 laboratory-bred flies were employed, of which only 39, or rather more than 5 per cent., became infected with T. gambiense. Another set of experiments were carried out to investigate the development of Trypanosoma dimorphon, the commonest cattle trypanosome in Uganda, T. nanum, and T. vivax in the Glossina palpalis. In experimenting with T. vivax in laboratory-bred G. palpalis, 178 flies were used, and of these 30, or 17 per cent., became infected. In all of the 30 flies except one the infection was confined to the proboscis. Infection of the proboscis with T. gambiense was only seen on one occasion. The conclusions arrived at by the Commission in its report may be summed up as follows: T. gambiense multiplies in the gut of Glossina palpalis in about one in every 20 flies fed on an infected animal; the flies become infective on an average 34 days after their first feed on infected blood; and a fly may remain infective for 75 days. With regard to T. dimorphon, T. nanum, and T. vivax, they may also multiply in the G. palpalis, which, therefore, must be looked upon as a possible carrier of the infection of these diseases. The Commission was also of opinion that the growth of flagellates in the proboscis of Glossina palpalis was characteristic of Trypanosoma vivax.

A JOURNEY THROUGH THE AIR FROM A MEDICAL STANDPOINT.

RECENT achievements in the science of aero-travelling have given a decided stimulus to the idea that general locomotion through the air is within sight. It certainly seems that difficulties are rapidly being surmounted, but still the risks are very great; the weather must be favourable for one thing, and then there must be no hitch in the motor engine. After all, no air-trip as yet can be started with the same certainty as a trip by land or by sea. The method of progression is under fair control, but stability under all conditions is not yet amongst the triumphs won. Supposing, however, that it was, the fact has then to be realised that a trip through the air will involve a good deal of nerve. The giddy height will have to be faced, the sudden swoop down or rise upwards with their disagreeable effects for a great many people will have to be reckoned with. Sea-sickness is a terror to many people, and the chances are that air-sickness will be worse. Most persons again have experienced the unpleasant feeling in a lift when it commences its descent or in a swing when, like the pendulum, it swings back. Not a few people refuse to stand close to the edge of a cliff or to trust themselves to look down into a vast chasm of space immediately beneath their feet owing to vague feelings of giddiness, fears of falling arising out of a sense of a jeopardised equilibrium. And yet these same people converse glibly about the nearness of the day when aero-traffic will be an accomplished fact, and point in support of their view to the enormously rapid advances which motor traffic in the streets has made. When the question is carefully considered in detail it will be conceded that there is hardly anything that is comparable between the air motor and the land motor from the point of view of attaining practical success. The problem in the case of the former is so complicated by the first requirement—the conquest of that great force which, do what we will, pulls us back again to earth the moment we dare to rise from

its surface. No special motor appliance is required to keep afloat on the sea or to keep a stable position on land, but we can only gain support in the air by means of moving machinery analogous to the wings of a bird or by utilising a buoy or a substance which is much lighter than air, and which, therefore, tends to float upon it. The machinery in the former case must obviously be well-nigh perfect and incapable of breaking down, while the difficulty in the latter case is the enormous bulk of floating gas that must be used. In short, the advances yet to be made in order to bring aviation within the practical affairs of daily life must still be very far-reaching. Then, assuming the great consummation has been reached, will the human organisation be able to stand aviation? This is by no means certain, having regard to the constant changes of atmospheric pressure—with their marked effects upon the respiratory and circulatory processes—which a journey through the air must entail.

THE RADIOGRAPHY OF THE RENAL PELVIS AND URETER.

EVERY year the applications of the Roentgen rays are increasing in number. Only a short time has elapsed since the great value of these rays in determining the size, shape, and position of the various portions of the alimentary canal was first recognised, and they are at the present time in daily use in clearing up obscure points in cases of disease of these organs. One of the most recent uses of the X rays has been described by Dr. Edward L. Keyes, junior, of New York city, in the third volume of the Transactions of the American Urological Association, where he has given an account of his studies by means of X ray pictures of the pelvis of the kidney and the ureter. While the physiology of a diseased kidney is best studied by means of the examination of urine withdrawn by a ureteral catheter, up to recently it has not been possible to learn much before operation of the gross changes. Palpation of the kidney is of comparatively little value; the kidney is deeply situated and not much is to be learnt by this method. The ureteral catheter has given a little information as to patency of the ureter, the presence of stone, or the amount of renal retention in the pelvis, but radiography will supply information not attainable in any other way. When it is employed unaided it shows with a great deal of certainty the presence of urinary calculi and sometimes the outline of diseased kidneys. A catheter capable of giving an X ray shadow has also been introduced into the ureter, and then a skiagram has been taken, but the information thus obtainable is not great. Dr. Keyes has employed a method in which he has taken skiagrams after injecting into the ureter and renal pelvis fluid capable of casting shadows. Bismuth in suspension, so satisfactorily employed in the case of the alimentary canal, is obviously objectionable for kidney work, for if any solid matter be introduced into the pelvis of the kidney it may easily form the nucleus of a calculus. After many experiments, he found that the most satisfactory fluid was a 50 per cent. solution of argyrol. The following is the method employed. A preliminary skiagram is taken to show a stone or any marked gross change in the condition of the kidney; then both ureters are catheterised, the catheters being inserted, if possible, as far as the pelvis of each kidney. Then the freshly prepared argyrol solution is slowly injected by means of a syringe, and the injection should be discontinued at the first suggestion of pain in the loin. As soon as both sides have been injected the X ray picture is taken, and immediately after the skiagrams have been taken the fluid is allowed to run out, otherwise renal colic may occur. The results obtained by this method are claimed as very satisfactory. Even without distending the pelvis fully the outline can be seen, and it can be recognised whether hydronephrosis is present or not. Dr. Keyes quotes three cases illustrative of the value of the method, and he gives some illustrations of the skigrams taken. The method has certain disadvantages; the solution of argyrol is uncleanly and it irritates the patient, and distension of the renal pelvis may cause pain; but the pain of injection can be minimised by injecting very slowly, and the value of the information obtained may well outweigh a little discomfort.

BESPECTACLED SCHOOL CHILDREN.

RECENT developments of school medical inspection and of the necessary treatment of defects discovered during such inspection have filled the minds of not a few with the dread that ere long our child population will be tied as securely to the doctor as they are proverbially supposed to be to their mothers' apron strings. And not the least alarming is the prospect conjured up by some recent figures that hosts of our chubby-faced little ones will be forthwith bedecked with hideous iron-framed spectacles, a prospect no more pleasing than our pet dogs in muzzles or the apocryphal caricatures of the big-headed bespectacled German child! Part of this apprehension arises from a failure of those who deal out figures to supply anything like a standard of comparison against which their figures may be measured. Such a letter as appears in the *Times* of June 2nd over the signatures of the Princess Christian and Lady St. Helier is a case in point. Appeal is made for funds for the supply of spectacles to poor children, and a list of hospitals is given where arrangements have been made for the examination of London school children whose sight is defective; no less than 17,190 children are expected to be examined each year under these arrangements. The total sounds huge, and the prospect of such an array of spectacles appalling to any except, perhaps, the maker of these aids to vision. In considering such a prospect two factors must be borne in mind: (1) that these 17,000 bear but a small proportion to the whole London elementary school population of 800,000; (2) that not all of these 17,000 will be required to wear glasses, or at least not permanently. In an examination of 1100 of these very children sent from London County Council schools to two of the London hospitals Mr. Bishop Harman[1] found the variety of defect (excluding cases of disease, scarred cornea, &c.) worked out as follows:—

Hypermetropia.	Hypermetropic astigmatism.	Mixed astigmatism.	Myopia.	Myopic astigmatism.	Odd eyes.	Totals.
468	315	78	102	115	22	1100
42·55	28·64	7·09	9·27	10·45	2	100

The first two groups of hypermetropia and hypermetropic astigmatism form 71 per cent. of the total, and these sorts of "defects" are the natural state of man, and for the most part only cause trouble when health is poor, close work excessive, or accommodation lost by reason of age. Lumping together the remaining cases as "myopia"—a most generous allowance to that dread of the school hygienist—there were 29 per cent. Since these figures are for a block of defective children estimated as one-tenth of a full school roll, it follows that really bad vision afflicts only some 2 to 3 per cent. Those who bear in mind the classical figures of Cohn of the prevalence of myopia in German schools can take comfort at this small proportion. Still, it remains a matter for reflection that at least 5 per cent. of our school-children

[1] Proceedings of the Royal Society of Medicine, vol. ii., No. 7, p. 206 (Children's Section), May, 1909.

will in the near future wear spectacles, half of them continuously and half of them for school work only. And since it is within the knowledge of those most in touch with the schools that the average of defect is higher in the poorer than the better-class elementary schools, this special appeal for monetary aid is justified. Poor vision is too great a disability to a child for it to be left unremedied, and difficult vision, such as is presented by astigmatism, too great a strain to add to the child's already sufficiently heavy tasks.

THE TREATMENT OF WOUNDS OF THE HAND WITH TINCTURE OF IODINE.

As stated in a recent annotation[1] the use of tincture of iodine for disinfection of the skin before operation is becoming more general. It has the great advantage of simplicity over older methods and appears to be perfectly reliable. We are indebted for the method to French surgeons. Nearly half a century ago Boinet, an excellent surgeon, insisted on the value of tincture of iodine in surgery and published a large volume entitled "Traité d'Iothérapie." It is interesting to remember that this occurred before the introduction of Lister's antiseptic system. But Boinet's teaching was not heeded in his time and only recently has it been revived by his countrymen. At a meeting of the Académie de Médecine of Paris recently Professor Paul Reclus called attention to the great value of tincture of iodine in the treatment of wounds of the hand, and the law on accidents in France, like the Workmen's Compensation Act in this country, has of late given special importance to such matters. As the hands of workmen are often callous, fissured, and covered with a blackish crust which contains grease, epidermal débris, and dust in which bacteria flourish, preliminary vigorous disinfection is usually recommended. Ordinary antiseptics are insufficient and recourse is had to ether, turpentine, benzine, or petrol. After this the hand is washed for a long time in soap and warm water. But this method is sometimes inefficacious; microbes carried by the liquids are inoculated into the wound and produce inflammation in spite of the most reputable dressings, moist or dry, aseptic or antiseptic. The new method is much simpler; it consists in painting the wounded region with tincture of iodine. A sterile brush is plunged into the flask containing the tincture and a coat is deposited around as well as on the wound as soon after the injury as possible. The alcohol is allowed to evaporate. When the surface is dry it is covered with an aseptic compress and a pad of absorbent cotton-wool which are secured with a bandage. In the evening or on the next day the application is repeated, and then at longer intervals until the wound is not touched for three or four days. It is important to remember that the application of the iodine should not be preceded by swabbing or washing of the wound, which is not only useless but injurious, because it disseminates microbes and because the iodine does not penetrate so well through skin soaked in water; the disinfection is therefore less reliable. Reclus insists on another condition: the tincture of iodine must be fresh. After it has been prepared eight days it is too "old"; it gradually loses some of its qualities and becomes irritating to the tissues and when applied to the wound causes much pain. If fresh tincture is used only some smarting is produced. In civil practice this method is a great advance, but in war it constitutes a veritable revolution. At the front cleansing and bathing of wounds are impracticable, yet failing the treatment now recommended they are necessary. The ground contains pathogenic microbes and the soldiers' hands are soiled in throwing up the mounds behind which they shelter. In a few minutes the iodine brush can be passed over the wound and a compress applied. This is not mere theory, for tincture of iodine was largely used in the Russo-Japanese war, and this is one of the causes of the success of the treatment of wounds in that war. The efficacy of the treatment equals its simplicity and seems to be due to the penetrating power of the tincture of iodine. Walther has shown that in less than seven minutes after it is applied to the skin the epidermis is sterilised down to its deepest layer and fragments removed do not yield cultures. The bactericidal effect is possibly increased by dehydration of the tissues, which are hardened. Under the older methods some cases of phlegmon, less diffuse and spreading than before the antiseptic period, are observed; under tincture of iodine they are never seen. The hand is a very complicated organ, containing many tendon sheaths and joints, the spread of inflammation to which may produce permanent stiffening. Since adopting the iodine treatment Professor Reclus has never seen this result. In adopting a conservative treatment of crushed fingers, particularly of the crushed thumb (of which it is important for purposes of prehension to save even the smallest part), the iodine treatment is of great value, for it prevents inflammation which leads to ankylosis. So convinced is Professor Reclus of the value of this treatment that he thinks that in every ambulance, train, and railway station there should be a flask of tincture of iodine which should be renewed every week. It seems to us that the inconvenience of renewing the tincture should be avoided and that it should not be beyond the powers of chemistry to produce a suitable stable preparation. In our previous annotation we stated that another French writer, Dr. Chassevant, has recommended a 1 in 15 solution of iodine in chloroform for disinfection of the skin as preferable to the tincture of iodine; he claims that it is less irritating than even the fresh tincture and perfectly stable.

[1] THE LANCET, March 26th, p. 874.

THE DIAGNOSIS OF PULMONARY EMBOLISM.

IN the *Boston Medical and Surgical Journal* of April 28th Dr. G. G. Sears points out that pulmonary embolism is more common than is usually supposed and is often overlooked because not considered in differential diagnosis. In the post-mortem room pulmonary embolism and infarction are not uncommonly found. They occurred in 106 out of 3006 necropsies (3·5 per cent.) performed at the Boston City Hospital. Some cases escape detection because no symptoms are produced; others because the embolism is a terminal event in a patient who is seriously ill or even *in extremis*, the symptoms being confounded with those of the primary disease. Between cases in which no symptoms are recognisable and those in which life is suddenly ended by syncope or asphyxia from plugging of a primary branch of the pulmonary artery, symptoms of all degrees of severity occur. The most important are sudden pain in the chest, dyspnœa, cough with bloody expectoration, irregularity and weakness of the heart, cyanosis, exophthalmos, dilatation of the pupils, and cold sweating. To these may be added chills, fever, great restlessness, delirium, opisthotonos, convulsions, or coma. If the occluded vessel is large enough to produce an infarct 4 or 5 centimetres in diameter there may be subcrepitant râles and signs of consolidation of the lung. The diagnosis rests on the sudden onset of pulmonary symptoms, more or less intense, associated with circulatory disturbances, which may vary from slight elevation of the pulse to serious cardiac failure, combined with a source of embolism such as advanced cardiac disease or venous thrombosis. But embolism may occur before there is any evidence of thrombosis, either because the thrombosis is situated in a small vessel and causes no symptoms or does not occlude a large one

sufficiently to block the circulation. Even at the necropsy the source may not be discovered, either because the thrombus has been completely detached or because the affected vein is outside the usual field of the post-mortem examination. Of 41 cases attributed to peripheral thrombosis in the Boston City Hospital series, the particular vessel affected was not identified in 17, though the locality was indicated by an inflammatory condition associated with some lesion such as an operation wound or ulceration or sloughing in various parts of the body. A thrombus was found in only 29 out of 54 cases in which it was probably of cardiac origin. Not even a probable source of embolism was found in six cases. The most characteristic symptoms are dyspnœa, cough with bloody expectoration, and pain. But the suddenness of onset alone gives the first significance, and the other two are so infrequent that their absence is of little importance. Signs of consolidation of the lung may assist the diagnosis, but may also lead to error by suggesting pneumonia. The grouping of the symptoms may suggest several diseases—cardiac asthma, acute dilatation of the heart, angina pectoris, pneumonia and pleurisy, and neuralgia. Signs of disease of the arch of the aorta or coronary arteries with attendant myocardial weakness, and a history of a feeling of oppression some time before the paroxysm, may point to cardiac asthma. The diagnosis from acute cardiac dilatation with pulmonary œdema may not always be possible. A lack of adequate cause for acute dilatation, especially if a small patch of pulmonary consolidation is found, points to embolism. In another type angina pectoris is simulated, and if sudden death follows differentiation may be impossible unless a history of previous anginal attacks can be obtained. The diagnosis from pleurisy or pneumonia may present peculiar difficulties, especially in post-operative and puerperal cases.

THE INTERNATIONAL MEDICAL CONGRESS, 1909.

IN the course of the last week the Executive Committee of the Sixteenth International Medical Congress held its closing meeting. The Transactions of the Congress, which cover 800 printed sheets, give a valuable *résumé* of modern medical science. The expenses of the Congress have been covered partly by the Government and partly by the municipality of Budapest, each contributing 100,000 crowns, these sums being in addition to the membership fees. The balance sheet shows a surplus, part of which, amounting to 20,000 crowns, will be used to found a "Prix de Budapest," a prize which will remain in the gift of the Medical Faculty of the Budapest University. The first distribution of this prize will take place at the next International Medical Congress in London in 1913. The documents referring to the late Congress will now be transferred to the new Permanent International Committee, but all information regarding its transactions will continue to be given for this year by the general secretary (Budapest, VIII., Mária-utcza 39). The "Album" which was brought out on the occasion of the Congress was a private undertaking, having no connexion with the office of the general secretary, and all inquiries referring to it should be directed to the Editor of the Album, Budapest, VI., Liszt Ferencz-tér 4.

YELLOW FEVER IN WEST AFRICA.

IN view of statements which have appeared in the press with regard to the outbreak of yellow fever in West Africa it is thought desirable to state that since May 13th, when the outbreak was first reported, there have been 12 cases in all, 9 at Sekondi and 3 at Freetown. All the cases have unfortunately proved fatal, and, with three exceptions, those attacked were Europeans. No fresh case has occurred at either port since May 26th, and no cases have occurred at any other place in British West Africa. As soon as the outbreak was reported a meeting of the Advisory Medical and Sanitary Committee for Tropical Africa was summoned, and two subsequent meetings have been held in connexion with the outbreak. Lord Crewe has acted throughout on the advice of the committee. As soon as it was certain that the disease was yellow fever Lord Crewe was glad to avail himself, with the consent of the corporation and the University of Liverpool, of the offer of Sir Rubert Boyce to proceed to the West Coast to assist in organising measures for stamping out the disease. Sir Rubert Boyce accordingly proceeded to Sekondi on June 1st, as our Liverpool correspondent announces, accompanied by six medical men specially appointed for this purpose. Two medical men were simultaneously sent to Freetown. Stringent precautions are being taken at both the affected ports and at the other British ports in West Africa to prevent the spread of the disease.

THE LONDON COUNTY COUNCIL AND THE MEDICAL INSPECTION OF SCHOOL CHILDREN.

THE greater part of the sitting of the London County Council on June 7th was devoted to the preliminary consideration of the annual education estimates. The cost of medical inspection accounted for an increase of £3615, and medical treatment added £4000. Mr. R. A. Bray, in the course of a general debate, remarked that medical inspection of school children in London was in a profoundly unsatisfactory condition. The County Council had fallen far short of the Board of Education's minimum requirements, and with the staff they would have in September they would still be behind. With that staff about 150 schools could be inspected in a year, and there were 900 schools in the administrative county. It would be six years before all the schools could be inspected unless the pace was accelerated. At the same meeting the Education Committee submitted a recommendation, which, however, was not reached, that in cases where children sent to hospitals were discharged after the first attendance on the ground that no treatment was necessary, the examination at the hospital should be regarded as "school medical inspection" within the meaning of the Act.

DISCOVERY OF A VESTIGIAL ORGAN IN THE HUMAN BRAIN.

AT a meeting of the Royal Society on June 2nd Professor Dendy gave an account of the vestige of a remarkable organ he has discovered in the human brain. The discovery is the result of a prolonged investigation of those very large and peculiar fibres (Reissner's) known to exist in the spinal cord of fishes and amphibians, but of unknown meaning and function. These fibres have a peculiar relation to an ependymal organ in the roof of the aqueduct of Sylvius. This organ Professor Dendy proposes to name the "subcommissural organ." He has traced its existence in the mammalia. In the chimpanzee it forms an epithelial recess in the roof of the iter, just behind the posterior commissure: hence the proposed name, "subcommissural organ." In the human fœtus of the fifth month Professor Dendy found the organ was the same in form as in the chimpanzee, but in the adult brain the cavity or recess of the organ becomes shut off from the lumen of the iter. The significance of the subcommissural organ and of Reissner's fibres is unknown, but Professor Dendy is of opinion that the fibres are not nervous in nature, but probably serve a mechanical function. He is further of opinion that the atrophy of the organ in the higher primates is probably related to the assumption of the erect posture.

THE annual garden party and distribution of prizes at Guy's Hospital will take place this year on Thursday, July 7th. The prizes will be distributed to the successful

students by Professor Howard Marsh, professor of surgery in the University of Cambridge.

THE Local Government Board has informed the London County Council that it does not see its way at present to undertake an inquiry into the need for public slaughter-houses in London, as suggested by the Council in November, 1909.

REPORTS OF THE LANCET UPON Disinfectants.

THE following report has been sent to Messrs. Edward Cook and Co., Limited, Soapworks, Bow, London, E., upon a sample of Cofectant (surgical) disinfectant fluid which they requested us to submit to chemical and bacteriological examination by the methods described in our Commissioners' report which appeared in THE LANCET of Nov. 13th, 20th, and 27th, 1909, and in an annotation in THE LANCET of May 17th, 1910:—

"THE LANCET" TEST.

Report on Disinfectant marked Cofectant (Surgical) received from Messrs. Edward Cook and Co., Soapworks, Bow, London, E., May 27th, 1910. Stated price to the public, 1s. 1½d. *(bottle containing 6 fluid ounces). Ref. No. D004-25.*

(1) BACTERIOLOGICAL.

Disinfectant under Test.

Time in minutes.	Percentage dilutions.											
	·096	·090	·084	·078	·072	·066	·060	·054	·048	·042	·036	·030
2½	0	0	+	+	+	+	+	+	...	...	...	...
5	...	0	0	0	+	+	+	+	+	...	...	...
7½	...	0	0	0	0	0	+	+	+	...	...	...
10	...	...	0	0	0	0	+	+	+	+	...	...
12½	...	...	0	0	0	0	+	+	+	+	...	...
15	...	...	...	0	0	0	0	+	+	+	+	...
20	...	...	...	0	0	0	0	0	+	+	+	...
25	...	...	...	...	0	0	0	0	+	+	+	+
30	...	...	...	...	0	0	0	0	+	+	+	+

Carbolic acid control.

+ = growth. 0 = no growth. ... = not tested.	Time in minutes.	Percentage dilutions.						
		1·3	1·2	1·1	1·0	·9	·8	·7
	2½	0	0	0	0	+	+	+
	5	0	0	0	0	0	+	+
	25	0	0	0	0	0	0	+
	30	0	0	0	0	0	0	+

Date of test, June 3rd, 1910.

$$\text{Carbolic Coefficient} = \frac{\frac{1{\cdot}00}{{\cdot}09} + \frac{{\cdot}800}{{\cdot}054}}{2} = \frac{11{\cdot}1 + 14{\cdot}8}{2} = 13{\cdot}0$$

(2) CHEMICAL.

Total Phenols (P) 76·44 per cent.

Carbolic Acid value by Bromine (B) 37·77

$$\frac{P-B}{3} = 12{\cdot}89$$

Date of issue of report, June 6th, 1910.

THE ADVANCEMENT OF MEDICINE BY RESEARCH:

ADDRESSES BY THE EARL OF CROMER AND SIR DAVID BRUCE.

THE Research Defence Society held its annual general meeting on June 3rd in the library of the Royal College of Physicians of London, with Lord CROMER, the President of the society, in the chair.

There was a good gathering, though the honorary secretary, Mr. STEPHEN PAGET, read letters of regret from many unable to attend.

The Hon. SYDNEY HOLLAND, in presenting the report of the committee, said that the members and associates now numbered 3360, being an increase during the year of more than 800. Antivivisection shops had been opened and had proved a good advertisement for the society, which circulated its own literature, and thousands of leaflets had been distributed outside such shops.[1] The committee was informed that the final report of the Royal Commission on Experiments on Animals would be published shortly, and they would make arrangements for presenting the facts of the report to the public. The society wished the public to know what good had been done by experiments on animals and in what a merciful way vivisection was carried out in this country at the present time. He did not think there was any Englishman who could fail to be disgusted with a pamphlet given away on the day of the King's funeral stating that the King's death was due to the knowledge gained by experiments on animals. It was a despicable thing to use the sorrow and excitement of that moment to promulgate such an untruth.

Sir RICHARD DOUGLAS POWELL, in moving the adoption of the report, said it was deplorable that a society should have to protect the public from the machinations of the cliques now dominating and misguiding other associations, whose proper work should be to supplement the efforts of science to abolish pain and to prolong life. For one animal life sacrificed in an experiment hundreds were saved. He had had to sign over a thousand certificates permitting experiments and two-thirds were mere pin-pricks for inoculation, while anæsthesia was required in all the rest. If in his researches the late Dr. Koch took a small toll of animal life he paid back to them a thousand-fold in the animal life and suffering which his great work would save and alleviate in the future. They could not but observe in the readiness of many sentimentalists to be imposed upon and exploited a fresh illustration of the truth and force of Mr. Roosevelt's remark: "Of all broken reeds sentimentalism is the most broken reed on which righteousness can lean."

Sir DAVID BRUCE seconded the resolution in the following eloquent speech:—

My Lord, Ladies, and Gentlemen,—It seems a pity that it should be necessary year after year to affirm propositions which one would think were self-evident—to repeat, for example, that animal experimentation is absolutely necessary for advance in our knowledge of the prevention of disease; or that experimenters do not torture or inflict unnecessary pain on animals. For, on the contrary, in 999 cases out of 1000 so-called vivisections there is no pain inflicted, nothing more than the injection of a drop of fluid under the skin by means of a fine hypodermic needle. No less than 97 per cent. of all experiments on animals in this country are inoculations, or experiments of the nature of inoculations, involving no sort or kind of operation on any animal. No operation, more than the lancing of a vein under the skin, is allowed to be done on any animal, except under an anæsthetic. It is unfair of the opposite party to appeal by caricatures and sensational posters to the emotions of the public rather than to their reason. All this yearly repetition seems a work of supererogation, a thrice killing the slain; but as long as human nature is constituted as it is, I am afraid it will require to be done. The worst of it is, that we cannot console ourselves with the feeling that by bringing forward irrefragable proof of the beneficent results of the work we will convince our opponents and turn them from cursing to blessing us. That will not be so. There are people at the present time so constituted as to the nerve cells of their brains that they believe the earth

[1] We review certain of these leaflets in a leading article on p. 1628.

is flat; and many other equally erroneous notions are held just as firmly. It must be remembered that these people may be well endowed in other respects; and the only way to explain the phenomenon is by saying they are monomaniacs—that is, a particular part of their brain is abnormal, twisted, or imperfectly developed. Else how can it be that there are people who say that consumption is not caused by the bacillus tuberculosis; that Malta fever is not caused by the micrococcus melitensis; that sleeping sickness is not caused by a trypanosome. Will any one of our opponents, who are so loud in print, drink a little of the milk of a goat affected with Malta fever? or introduce under his skin a single sleeping sickness trypanosome? Or allow an infected tsetse fly to bite him? Not a bit.

That reminds me, that in 1903, when we called a meeting of the Uganda chiefs together to explain to them that sleeping sickness was caused by the entrance of a blood parasite into their bodies, that this was carried from the sick to the healthy by the "Kivu," or tsetse fly, and that the way to stop the sleeping sickness was to remove the natives from the fly area, they politely disbelieved us, saying that the fly had always been on the lake-shore in their time and in their fathers' time, and that, therefore, it was harmless. I then said to Sir Apolo Kagwa, the Prime Minister, that if he did not believe the fly carried sleeping sickness he should go and sit among them under the shade of the trees on the lake-shore in order to show everyone the faith he had in the innocence of the fly. But he answered, God forbid. But these same so-called uncivilised natives, whose untutored minds could not perhaps at once grasp the position, a few years later were so convinced of the truth of what we told them that they cleared the lake-shore and islands of their inhabitants, with the result that, so far as I am aware, at present not a single new case of sleeping sickness is being contracted in Uganda proper, and the toll of human lives to this plague has ceased to be paid. This toll has been estimated at 200,000 out of a population of 300,000. In one island alone—Buvuma—with a population of 22,000, 18,000 are reported to have perished. What a saving of human life has been achieved by the simple means of removing the population from the fly area, and the necessary knowledge was acquired mainly by animal experimentation.

During the last 18 months the study of sleeping sickness in Uganda has been continued, and before I left at the end of last year we had carried out more than 2000 experiments. It was very important to find out how long the fly remained infective, as on this would depend the repopulation of the lake-shore and islands. By animal experimentation it was found out that the flies when once they had sucked blood from an infected animal might remain infective for at least 75 days; and, again, that the flies on the lake-shore were still infective, although the natives had been removed some two years before. By animal experimentation we also discovered that cattle and antelope could be infected by sleeping sickness, and, in fact, we found a cow on the island of Kome which had been naturally infected. We made many experiments to find out if the birds and large mammals, such as the hippopotami, on the lake-shore were capable of giving sleeping sickness to man by means of the fly; but although we injected the blood of many water-birds, antelope, and hippopotami into healthy susceptible animals, we discovered no infected animals, save the cow mentioned. The importance of these experiments is great, as the repopulation of some thousands of square miles of the very fertile land lying along the lake-shore depends on the results gained.

By animal experimentation we found out the cause and nature of a disease called "Amakebe," which kills 70 to 80 per cent. of the calves born in Uganda. This had eluded all other workers up to the present. The finding out of the true cause and mode of spread of a disease is a big step in its prevention. By animal experimentation we found out the nature of several of the most important diseases of the domestic animals in Uganda, and on more than one occasion nipped an epidemic in the bud, thus earning, if they had known it, the gratitude of the animals themselves. By animal experimentation we found out the nature of a disease among natives in Uganda called "Muhinyo." As this is interesting I will describe it in detail. When the Sleeping Sickness Commission passed through Kampala, the native capital of Uganda, at the end of October, 1908, on the way to their camp at Mpumu, they were informed by Apolo Kagwa that a new disease had broken out in the Province of Ankole, and that many people were sick. This was the disease which had been investigated in 1906 and described as beri-beri. At that time it was reported that in one part as many as 25 per cent. of the natives were down with it. In the same year another observer described it as dengue, with persistent joint pains. Again, in 1909 a third doctor investigated the disease, and came to the conclusion that it was kala-azar. Now, none of these observers used animal experimentation. They used the methods of clinical diagnosis, each differently and all wrong. If anyone of them had injected a few drops of the blood of one of these cases into a monkey the nature of the disease would have been manifest. Thanks to the kindness of Apolo Kagwa, the Commission had the opportunity of seeing a case of muhinyo, which was sent to the laboratory at Mpumu from Ankole, a distance of some 200 miles. This man was carefully examined, but as it was an old case nothing very definite was discovered. It was decided to go to the district and see cases on the spot. In this way some 50 cases were examined. The chief symptoms were fever, profuse sweating, pains and swellings of the joints, and extreme weakness and emaciation. The natives looked like scarecrows. The disease was of long duration, many of them having been ill for several months. Cultivations were made from the blood and spleen of some of the cases, which showed that there was a small micrococcus present very similar to micrococcus melitensis. Monkeys and rabbits were inoculated with this muhinyo organism, and at the same time animals were inoculated with a strain of micrococcus melitensis brought from Malta. Now, when the organism separated from the muhinyo cases was tested with the serum of the animal into which the micrococcus melitensis had been injected, it gave rise to marked clumping of the micrococci, and when the micrococcus melitensis brought from Malta was tested with serum from the muhinyo cases the same phenomenon occurred. It was therefore decided that, as the symptoms of the disease were the same, the organism isolated the same, the character of the growth of the organism the same, that both agglutinated with the same serum, the disease muhinyo was in reality Malta fever; and the curious fact was established that here, on the shores of Lake Albert Edward, in the centre of Africa, thousands of natives were sick of Malta fever, and more than a thousand had been reported as having died from it.

Now, as it had been proved beyond the shadow of a doubt that Malta fever is caused in Malta by the drinking of goats' milk, and by that alone, it was a matter of importance, as well as curiosity, to find out if the goats in the affected district also suffered from Malta fever. Last June Apolo Kagwa was asked if it would be possible to have a number of goats sent to the laboratory from a place in Ankole where this muhinyo was common. The Prime Minister said he would try to have them sent. In July 24 goats arrived, and were at once examined. Among them the blood of three was found to give the agglutination reaction with the micrococcus melitensis got from a case of muhinyo, and also with the germ of Malta fever brought from London. One of these animals was then killed and cultures made from its spleen. These cultures grew a micrococcus which had all the cultural and morphological characters of the micrococcus melitensis. Finally, the micrococci were tested as to their power of agglutination with a known Malta fever serum and were found to react in high dilution. This, then, completed the proof that muhinyo was Malta fever, and that in Central Africa, as in Malta, the infection was caused by the drinking of goats' milk.

In conclusion, I would like to say a few words about Malta fever in Malta. I hear it is said in the newspapers that goats' milk in Malta is quite harmless, and that the doctors had got rid of Malta fever by simply calling it simple continued fever. This simple continued fever is quite a distinct disease and had been made the subject of study in Malta during the last year and the present one. In 1908 Dr. Doerr, an Austrian army surgeon, discovered that it is a fever caused by the bites of the common sand-fly, which is common in Malta during the summer months, and the parasite which is conveyed from man to man is, like that of yellow fever, so small as to be invisible under the highest powers of the microscope. As none of the lower animals are susceptible to this disease all the animal experimentation has been carried out on man himself. Our soldiers have been

found plucky enough to come forward and offer themselves. As Colonel C. Birt, R.A.M.C., who conducted this investigation, writes: "Science and humanity owe a debt of gratitude to the self-sacrificing courage and zeal of the gunners of the 99th Company of the Royal Garrison Artillery. When the object of the research was explained to them they vied with one another in offering themselves as cheerful victims for the sake of mankind. The men of this company are of splendid physique and they rejoice in rude health, which they maintain by the enthusiastic pursuit of athletics. Those volunteers who were selected for experiment had resided less than a year in the island. They were all exceptionally healthy, strong, and muscular men. The aches and pains during the acme of phlebotomous fever make the sufferer an object of our profound pity. Those who, of their own accord, knowingly submit to them are martyrs indeed." In this way it was proved that sand-flies fed on a soldier suffering from simple continued fever and then conveyed by the quickest route to England were capable of setting up the disease in two Royal Army Medical Corps officers in London. Also that blood taken from a patient and filtered through a porcelain filter could give rise to the disease in healthy men. This shows that the disease is caused by an ultra-microscopical parasite, and that this parasite is conveyed from the sick to the healthy by the sand-fly. This year the study of the habits of the sand-fly is being pursued with energy, and I hope that within a short time simple continued fever will have disappeared as completely from Malta as Malta fever has done. I may here give the latest figures for Malta fever:—In 1905, in the Army alone, there were 643 cases, and in the Navy about the same number; in 1906, 147; in 1907, 11; in 1908, 5; in 1909, 1; in 1910, 0.

Lastly, I hear that it is reported in the daily press that the goats which were taken to America and were supposed to have set up an epidemic on board the s.s. *Joshua Nicholson*, were really quite healthy and never gave rise to any disease. I have just had a report sent to me by the Board of Agriculture in America, from which it appears that as soon as these goats were landed they were placed in quarantine and subjected to a most rigorous investigation. The man who took them from Malta did not believe in the milk theory, and he died. A delicate woman who lived on the station was fed on the goats' milk, as it was considered to be very nourishing; she took a severe attack of Malta fever and also died. The goats, 60 in number, were kept under observation for some two years, those which showed severe infection with Malta fever being slaughtered from time to time. The result was that they have been all slaughtered, as they all developed sooner or later this serious human disease. Not one could be saved, although the greatest efforts were made to do so.

Mr. ANTHONY HOPE HAWKINS proposed, and Mrs. SCHARLIEB seconded, a vote of thanks to Lord Cromer and to the President of the Royal College of Physicians of London for the use of the library. Mr. Hawkins said he believed the speakers that afternoon were carrying on what was probably the most beneficent work of the present age.

The EARL of CROMER, in returning thanks, said that if the British public were becoming gradually acquainted with their work and motives it was mainly due to the unselfish and untiring zeal of Mr. Stephen Paget. When he (Lord Cromer) was asked to speak on the subject of vivisection, as had frequently been the case during the last few years, he was reminded of a statement made by Mr. Cobden during the Anti-Corn Law agitation. Mr. Cobden said there was only one way of getting an idea into the heads of the British public, and that was to go on repeating the same thing over and over again in different language. That was generally what he had to do. He was one of those who belonged to the army and who knew nothing about organisms. He knew something about organisation, but that was quite another matter. What they had to do was to convince the public that those who advocated the progress of science and who endeavoured to prolong human life and mitigate human suffering were the true friends of humanity, and that their opponents who, from perhaps good but mistaken notions, placed obstacles in their path were not the true humanitarians. They had to judge of the truth by results, and they had been told of remarkable results in the case of sleeping sickness and other African diseases by the highest living authority on the subject. A pamphlet had been circulated by their society entitled "Recent Surgical Progress," by Professor W. W. Keen, an eminent American surgeon, which contained facts of the same nature. The author asked what the friends of experimental research had done, and he (Lord Cromer) said they had discovered antiseptic surgery and made possible all abdominal surgery. They had also made possible all modern surgery of the brain, and had gone far to prevent lockjaw. They had enormously reduced the death-rate in cases of compound fractures and in the operation of ovariotomy. In some parts of the world, notably in Havana, they had practically abolished yellow fever. They had made possible the cure of nearly all cases of hydrophobia, had immensely reduced the mortality in cases of diphtheria, and also in that terrible disease cerebro-spinal meningitis. They had shown the cause and method of propagation and prevention of the deadly malaria which devastated whole regions and armies. They had reduced the mortality from tuberculosis by from 30 to 50 per cent., due to the discovery made by the great German scientist, whose death not only his native country but the whole civilised world had recently had cause to mourn. Nor were human beings alone benefited. The brute creation had reaped enormous benefit from their humane researches, for the causes of tuberculosis, Texas fever, anthrax, glanders, and other infectious diseases of animals had been discovered. He had not nearly exhausted the list, but was not that a noble record? Professor Keen, in his pamphlet, said the foes of experimental research had done nothing but stand in the way of progress. Not a single human life had been saved by their efforts; not a single household made happy; not a single disease had had its ravages abated or abolished. He himself was quite prepared to leave the society's case there, asking any impartial person, whether professional or unprofessional, to compare their noble record with the sterility of their opponents. A Bill had been recently introduced into the House of Commons by Sir Frederick Banbury and Sir Francis Channing having for its object the total prohibition of experiments on living dogs. Of all animals, dogs were the most faithful companions of man. The love of dogs was not confined to antivivisectionists, but putting sentiment aside he asked whether such a proposal could be justified. He thought no such justification could be found. If dogs were to be exempted, why not cats, horses, guinea-pigs, and other animals? They had it on the highest professional authority that the use of the dog was indispensable for the furtherance of their knowledge in respect of certain functions of the human body. Further, a very large number, he believed some 20,000, of stray dogs were annually put to death in London through the instrumentality of the lethal chamber in the Battersea Dogs' Home. He was unable to give the exact number of dogs used annually for experimental purposes in this country, as the official returns did not specifically distinguish between dogs and other animals. But it might confidently be asserted that the number had to be reckoned, not by thousands, but by hundreds, and that by far the greater portion were put to death in a manner as painless as that adopted at the Battersea Dogs' Home. The only result, in fact, of the passing of the Bill would be that a few hundred dogs a year more would pass into the Battersea lethal chamber. He thought it was the duty of everyone connected with the society to offer what legitimate opposition they could to such a measure, and if it ever reached that menaced branch of the Legislature to which he belonged he would certainly do his utmost to oppose it. There was another Bill which had been prepared by Mr. Stephen Coleridge, and he (Lord Cromer) could not do better than illustrate his views upon it by a historical anecdote. It was related that in 1802, when the country was threatened by invasion from France, a large number of Volunteer corps were formed. Amongst others, the Articles of Association of one corps in the neighbourhood of the Cinque Ports, of which Mr. Pitt was then the Warden, were submitted to that statesman. It was a very elaborate and detailed document containing a great number of carefully worded provisions as to how, when, and where the Volunteers were to be employed. The words "except in case of actual invasion" frequently occurred. Towards the close of the document Mr. Pitt came across a provision which was to the effect that under no circumstances whatsoever was this corps of Volunteers ever to be sent out of the United Kingdom. Mr. Pitt lost patience, and added to the clause "except in the case of actual invasion." That was very much the treatment which animal experimentation received from Mr. Stephen Coleridge. His

Bill professed to allow vivisection, but surrounded it with such an enormous number of restrictions as to render the working of the Act practically impossible and altogether ineffective for scientific research. For instance, in one clause it was provided that no one was to be allowed to conduct any experiment unless he could produce a certificate signed by at least one justice of the peace and one clergyman, stating that he enjoyed a high reputation for humanity. He thought that such a proposal was almost unique in their legislative annals. What standard of humanity was to be adopted? A justice of the peace who was a member of the Antivivisection Society would adopt one standard and a justice of the peace who was a Master of Hounds would adopt a very different one. The proposal was really absurd and was almost sufficient for the Bill to be laughed out of court. Could it be reasonably suggested that an eminent man like Professor Starling was to be compelled to go and look about for a justice of the peace and a clergyman who would give him a certificate for humanity? If this clause were to become law he would like to propose a very useful amendment that no one be allowed to open his lips on the subject of vivisection unless he could produce a certificate signed by at least two judges and a brace of bishops that he enjoyed a high reputation for commonsense and accuracy. In conclusion, Lord Cromer said he was told that the report of the Commission would probably be issued in July, but the long delays which had already occurred precluded him from entertaining any very sanguine hope that this expectation would be realised. When the report was issued it would be a very valuable document and would receive the greatest attention from the general public, and from none more than from every member of the Research Defence Society.

THE OFFICIAL RECOGNITION OF SYNTHETIC PRODUCTS AS EXPRESSED BY THEIR INCLUSION IN DIFFERENT PHARMACOPŒIAS.

THE establishment of pharmacology on a scientific basis and the consequent development of rational therapeutics dates from the second decade of the past century, and coincides with the isolation of the active principles of many drugs of plant origin. At the same time, the progress in chemistry has enabled the production of pure chemicals. In the place of preparations of more or less unknown composition or purity the modern physician has at his disposal an armamentarium of products answering to definite standards, and this not alone as regards their chemical properties, but, a matter of greater importance, as far as their action on the human organism in certain conditions is in question.

Very soon, however, it became apparent that the action of several of even the purest and most useful remedies might be paralysed by certain undesirable by-effects, or by an unexpected reaction on the part of the individual. To recapitulate the efforts made to eliminate these drawbacks would be to trace the development of pharmacy and of pharmaceutical chemistry during the past years. To put it briefly, three procedures have been adopted in this direction: (1) the production of a combination of the preparation in some form in which it no longer displays its unwelcome by-effects; (2) the alteration of the chemical structure of the substance; and (3) the production of new bodies. As representatives of the first method, figure the well-known combinations of bromine and iodine with an oily medium, while the derivatives of morphine (benzoyl, ethyl, and diacetyl morphine) will serve as illustrations of the second. The third method, the production of synthetic preparations, has led to the manufacture of a very considerable number of products, in a great measure due to the enterprise of German research chemists acting in coöperation with pharmacologists.

In spite of their thoroughly scientific foundation and of the extensive trials to which the majority have been submitted, only a restricted number can claim to have gained a permanent place in materia medica, while others, although presenting numerous advantages in certain cases, have failed to realise the expectations with which their advent was heralded.

In view of the approaching issue of a new edition of the British Pharmacopœia, it is a matter of interest to ascertain to what extent this class of preparation has gained official recognition in other countries, as reflected by their inclusion in the various national Pharmacopœias. Before entering into the subject, one point must be made clear. It must not be overlooked that the process of manufacture of a large number of these synthetic products is covered by patents in many countries, or the name under which they have been introduced is registered as a trade-mark. Without entering into the controversial subject of substitution, it may be mentioned that where either or both of these conditions prevail there is some reluctance on the part of the compilers of a Pharmacopœia to give official recognition to what constitutes a monopoly. On the other hand, the adoption of the scientific name as a title for many of these products is handicapped by the unwieldy length of the appellation, and for this reason is foredoomed to be little used, yet, if injudiciously abbreviated, errors may be the result. The coining of a new name as the official title may again only create more confusion; this has to a certain extent been adopted in the United States Pharmacopœia in 1905, where we find the title "Hexamethylenamina" in lieu of the full "Hexamethylenetetramina."

The attitude of the various Pharmacopœias on this subject is rather interesting. In no case do we find that the full scientific names alone have been adopted as titles, but where possible a shorter designation has been chosen. The recognition of the names under which these preparations have been introduced, the "popular names," as the Japanese Pharmacopœia terms them, differs very considerably in the different countries.

The following Pharmacopœias have almost exclusively adopted the chemical names as titles[1]: Belgium (1906), Denmark (1907), and Holland (1905), where in some cases the popular name is given as a synonym under the official title; in France (1908) and Austria (1906) the popular names, where mentioned, appear as a footnote to the respective monographs; in Japan (1907) these appellations are given in two separate tables in the appendix; in Germany (1900) they appear in the table of synonyms, as is also the case in Switzerland (1907); in the latter country they are also mentioned in the table of maximum doses. In Italy (1909), Russia (1902), Spain (1905), and Croatia-Slavonia (1901) the popular names figure largely as the official titles or as synonyms under the latter, only in the case of the Italian Pharmacopœia it is distinctly stated that the use of these names does not constitute any official recognition of the proprietary rights held by certain persons, but that this course has been dictated for reasons of convenience. In Sweden (1908) and in Hungary (1909) in each case the popular names only appear in three instances. In the United States Pharmacopœia (1905), if we except antipyrin and iodol, these are completely ignored.

On examining the above 15 Pharmacopœias for the inclusion of recent synthetic preparations, we find that four are official in all: antipyrin, phenacetin, salol, and sulphonal, the only four also included in the British Pharmacopœia. In these 15 Pharmacopœias, which have all appeared during the present century, we find the following synthetic preparations to occur most frequently, as indicated by the figures against the name of each preparation. The preparations which will figure in the new German Pharmacopœia to be issued shortly have here been taken into consideration, and as it may be assumed that the products are best known by their popular names, these have been adopted regardless of the differences in the official nomenclatures:—

Airol	2	Lactophenin	3
Aristol	6	Novocaine	2
Aspirin	8	Protargol	6
Benzonaphthol	4	Pyramidon	3
Betol	2	Salipyrin	11
Creosotal	4	Salophen	4
Dermatol	14	Stovaine	2
Dionin	4	Tannalbin	6
Diuretin	13	Tannigen	4
Duotal	14	Tannoform	3
β Eucaine	4	Trional	12
Euquinine	3	Urotropin	7
Heroin	6	Veronal	4
Iodol	4	Xeroform	3

[1] The dates in brackets denote the year of issue of the Pharmacopœia.

An interesting comparison is afforded by the maximum doses fixed for some of the above preparations. In the following table the first figure under each country indicates the maximum single dose (in grains), the second the maximum dose within 24 hours:—

—	Italy.		France.		Hungary.		Switzerland.	
Aspirin	15	75	15	90	—	—	—	—
Diuretin ...	15	90	—	—	15	120	15	90
Dionin	—	—	—	—	¾	2½	¾	2½
Duotal	15	45	7½	30	15	75	15	45
Heroin	¼	7½	—	—	—	—	1/12	¼
Trional	30	60	30	30	—	30	30	60
Veronal... ...	15	30	—	—	—	—	15	30

A question of synthetic preparations—namely, the substitution of products issued under protected names by preparations placed on the market by other firms but under their chemical names—is at the present moment exciting considerable interest in medical circles in Germany. The existing German Pharmacopœia (as well as the new edition) has adopted the full chemical name as a title in the case of official synthetic preparations. For instance, instead of antipyrin figures the formidable appellation "Pyrazolonum phenyldimethylicum." In the new Pharmacopœia, in the case of preparations such as novocaine (paramidobenzoyldiethylaminoethenol hydrochloride) it cannot be expected that these names will be received with enthusiasm by the practitioner. On the other hand, the sick-club organisations insist upon the prescribing of the cheapest drugs, and proprietary preparations are only allowed in special instances. Therefore the prescribers are enjoined to make use of the substitutes. Recently the organisation of Würtemberg sick clubs has adopted a plan to ensure the dispensing of substitutes only, even if the physician should make use of the protected name. A number of sick-club doctors have signed an agreement to the effect that they consent to the dispensing of a substitution product in all cases where they may make use of the registered trade-name, and the pharmacists have been supplied with a list of doctors who have consented to this arrangement, as well as of the preparations to which it applies. It remains to be seen what attitude the legal authorities and the firms with interests at stake are likely to take in this matter.

THE ANNUAL REPORT OF THE SANITARY COMMISSIONER WITH THE GOVERNMENT OF INDIA FOR 1908.

(*Concluded from p. 1563.*)

The Health of the Native Army of India.

THE average strength of the native Indian troops, including those on duty in China and other stations outside India, was 126,975; their health statistics, while being more favourable than those of the European troops, were not so satisfactory as in 1907, when the rates of constantly sick, of invaliding, and of mortality were the lowest on record. The admission rate to hospital in 1908 was 674·4 per 1000, and the ratios of constantly sick, of deaths, and of invalids were 22·8, 7·41, and 6·63 respectively. The increased rate of admission to hospital was almost entirely due to the greater prevalence of malarial fevers, the admission rate from this disease alone being 266 per 1000, as compared with 225 in 1907, and among the more important diseases the admission rates from dysentery, diarrhœa, enteric fever, and cholera were also higher than in that year. The increased death-rate was due chiefly to a higher mortality from cholera, enteric fever, and pneumonia, but the death-rates from respiratory diseases and tubercle of the lungs were also higher than in 1907. The number of men invalided for discharge from the service was 842, as compared with 728 in 1907; these were mainly cases of tubercle of the lungs, injuries, debility, and malaria. Amongst regiments with a record of much sickness and mortality during the year were the 1-6th Gurkhas at Abbottabad, the 86th Carnatic Infantry at Secunderabad, the 112th Infantry at Nasirabad, the 1-2nd Gurkhas at Drosh, and the 41st Dogras at Cawnpore. The admission-rates in these regiments ranged between 420 and 1040 per 1000, and the death-rates between 21·46 and 33·16 per 1000. In the native army, as in the European, cholera was much more prevalent than in the previous year, 174 cases, with 116 deaths, being reported. Twelve cases, with 5 deaths, occurred among the native troops of the Mohmand Field Force. There were 103 admissions to hospital on account of small-pox, with 3 deaths. Small-pox is usually a very fatal disease among natives of India, but that vaccination and revaccination have conferred upon the native troops a remarkable protection is shown by the fact that out of the 695 cases that have occurred among them during the last 10 years only 30 proved fatal, giving a case mortality of 4·3 per cent. Malaria accounted for over 39 per cent. of the total number of admissions from all causes, October and November being the months of greatest prevalence. There were 9 cases of kala-azar reported during the year, 4 of which proved fatal. The stations affected were Dehra Dun, Kila Drosh, and Abbottabad. The diagnosis was confirmed by finding the Leishman-Donovan parasites in blood obtained by splenic or hepatic puncture, or in smears from the spleen after death. The medical officer of one of the regiments at Dehra Dun considered that the prevalence of the disease in that station is increasing. Typhus fever caused 4 admissions and 2 deaths.

A noteworthy increase has been recorded in the number of cases diagnosed as enteric fever in the native army during recent years. It is coincident with a yearly decline in the number of cases returned under the heading of remittent fever. The probability that altered diagnosis rather than a real extension of prevalence is the cause of the recorded increase is supported by the results of a detailed examination of the statistics. In 1908 350 admissions, with 73 deaths, from enteric fever occurred. The source of infection was not definitely ascertained in any case that occurred among native troops during the year, and this is not surprising when we know that the great majority were diagnosed on admission to hospital as malaria and that usually 10 days or a fortnight elapsed before the diagnosis of enteric fever was made by the ineffectiveness of quinine in treatment and the results of the Widal test. The Sanitary Commissioner thinks that it will probably be some years before what may be called the normal incidence of enteric fever among native troops is accurately reported, and that until then it would be wrong to consider that the real prevalence of the disease is increasing among them.

Malta fever caused 23 admissions. The largest number of cases in any regiment was 7 in the 32nd Sikh Pioneers stationed at Ambala. All the patients in this regiment gave a history of having drunk goats' milk, but although many goats in an adjacent village were examined none were found to be infected. An order was issued prohibiting the bringing of female goats to the lines, and it is said that after the issue of this order only one case—a doubtful one—of Malta fever occurred. Coincident with the fall of plague among the general population of India in 1908 the number of cases among native troops fell from 85 in 1907 to 36, and the number of deaths from 56 to 14. Scurvy caused 191 admissions. The largest number of cases occurred in the 126th Baluch Infantry (18 admissions) at Quetta, 17 of the cases occurring among men of the detachment at Robat, where the only vegetables available were onions, and even these were not obtained during June, and 13 of the cases occurred during July. The 112th Infantry, which had detachments on the Persian Gulf, recorded 14 cases. The admission-rate for tubercle of the lungs rose from 2·5 per 1000 in 1907 to 3·0, and the death-rate from 0·33 to 0·42, the total number of admissions and deaths being 322 and 42 in 1907, compared with 378 and 53 in 1908. Dysentery caused 5019 admissions to hospital and 28 deaths. Venereal diseases caused 1934 admissions, giving a ratio of 15·2 per 1000, as compared with 4801 admissions and a ratio of 69·6 among European troops. There were 13 admissions to hospital for beri-beri and there was no death. Ten of the cases occurred in the 83rd Light Infantry, stationed at Cannanore, the disease being of a mild type and confined to recruits. No case occurred among the civil population of the district, and beyond suggesting that the consumption of bad rice may have been concerned the officer in medical charge of the regiment was unable to account for the outbreak.

The Jails of India.

Poor and belated harvests raised the already high prices of food and high prices led to an increase of crime, and the

number of prisoners admitted into the jails rose from 291,165 in 1907 to 341,831, a total increase equal to 17 per cent. Many of the prisons were continuously overcrowded and a large proportion of the newly-admitted prisoners were in a bad state of health owing to the effects of scarcity of food and malarial infection. It is, however, creditable to those concerned with the administration and management of the jails to record that in spite of these adverse conditions the health of the prisoners remained fairly good. The admission and constantly sick rates were only slightly higher than those of former years. The death-rate was 24·17 per 1000, as compared with 18·51 in 1907. The diseases which caused the highest rates of admission to hospital were: malaria (197·7 per 1000), dysentery (76 9), abscesses, ulcers, and boils (65·2), and diarrhœa (37·6). The diseases which caused the highest death-rates were dysentery (4·67 per 1000), tubercle of lungs (3·76), and pneumonia (3·24). Malarial fevers, although the commonest of the diseases, are seldom the direct cause of death in prison. In 1908 there were 20,039 cases of malarial fever treated in the jail hospitals and only 105 terminated fatally. Assuming that all the recorded deaths were due to malaria only, which the records show was by no means the case, only one attack in 191 cases ended fatally, which proves that even in a year when malaria was peculiarly severe malarial diseases, when efficiently treated—using the term in its fullest sense—are by no means fatal. "It appears from the evidence," says the Sanitary Commissioner, "whatever the value of measures taken against mosquitoes, whether to prevent their breeding or to prevent their biting, that in a very malarious year in prisons the administration of quinine is for the present the remedy upon which reliance must be placed." Judging by the success attained in the Punjab (undertaken under the personal direction of the Inspector-General of Prisons, Lieutenant-Colonel G. F. W. Braide, I.M.S.) and generally elsewhere, when special efforts were made to carry out the administration of quinine in a thorough manner, there is every reason to hope that as the prophylactic use of quinine becomes more widely adopted the decline in the frequency of malarial infections will continue. Dysentery caused no less than 7796 admissions and 473 deaths in 1908, as compared with 6328 admissions, with 240 deaths, in 1907. Of the 473 prisoners who died from dysentery during the year, 253, or nearly 53 per cent., had been less than six months in prison. Tubercle of the lungs caused 951 admissions, with 381 deaths, during the year under review. The opinion is widely held, and evidence has been brought forward to prove, that tuberculous disease, particularly tubercle of the lungs, is increasing in India, especially in the towns. It appears, however, that tubercle of the lungs, although prevalent, is not increasing among prisoners as a body. There were 337 cases of cholera and 170 deaths; all the deaths except 3 occurred in the four northern jails, where the prevalence and severe mortality from the disease are attributed by the Inspector-General to conditions of famine amongst the people. There were 122 cases of small-pox and 15 deaths, 10 cases of plague and 5 deaths, and 113 cases ascribed to enteric fever, of which 36 terminated fatally. In 21 jails two or more cases of enteric fever were recorded, and in all but four of the fatal cases the post-mortem appearances confirmed or supported the clinical diagnosis. In regard to the jails and other matters connected with sanitation, further information will be found in a recent series of articles dealing with various sanitary reports from India.[1]

Vital Statistics of the General Population.

The total population now under registration in India is 226,409,600. The total births registered were 8,554,427, giving a birth-rate of 37·78 per 1000, compared with 37·65 in 1907. The Central Provinces again showed the highest birth-rate—namely, 52·84 per 1000; the lowest birth-rate was recorded in the small province of Coorg, where it was 24·17, the low rate being attributed to exceptional circumstances, amongst them being the small proportion of females in the population. The total deaths registered were 8,653,007, compared with 8,399,623 in 1907 and a five years' mean of 7,680,007. The death-rate was 38·21, or 1·03 per 1000 higher than in 1907 and 4·25 higher than the mean death-rate of the previous five years. In the different provinces the rates ranged from 52·73 per 1000 in the United Provinces to 26·2 in Madras. Owing to the severe epidemic of malarial fever in the autumn the fever death-rates in the United Provinces (41·31), the Punjab (34·66), and Ajmer-Merwara (30·79) were exceptionally high.

Chief Diseases among the General Population.

In 1908 there was a considerable increase in the number of deaths attributed to cholera and small-pox, a small increase in the number under dysentery and diarrhœa, and an increase of nearly a million in the number attributed to fevers. Fortunately, the number of deaths from plague decreased very greatly, but from all causes taken together there were recorded in British territory 253,384 more deaths than in 1907. Cholera caused 591,725 deaths, or a death-rate of 2·61 per 1000 in 1908. Small-pox caused 170,694 deaths (0·75 per 1000). Plague caused 156,480 deaths (0·50 per 1000), compared with 1,315,707 (ratio 5·16) in 1907. Fevers caused no less than 5,424,372 deaths, giving a ratio of 23·96 per 1000, as compared with the more or less constant death-roll of 4,500,000 and the mean death-rate of rather less than 19·5 per 1000.

The wave of epidemic malaria which in the autumn of 1908 swept over certain provinces of India—especially the North-Western Provinces—was one of the chief distinguishing features of the year. A very large proportion of the total mortality from fever among the general population occurs among children and the aged, and in epidemic years they suffer disproportionately, because in such years they have to undergo privations which loosen their feeble hold on life. In the Punjab in 1908 the infantile death-rate from fever was doubled, and the fever death-rates among children between the ages of 1 year and 10 years were more than doubled. Among the general population many know that quinine is a remedy for malarial fever and are eager to get it when they are suffering, but many are prejudiced against it, and probably the majority have never heard of it. The advantages of the drug will have to be brought before all those who live in malarious places and they will have to be educated to use quinine in sufficient quantity at the right time. The best preparations for the use of adults and children will have to be selected, and probably much will depend upon the way in which the drug is dispensed. The correct dose will have to be determined, and the Sanitary Commissioner thinks it would be of advantage to issue the drug in tablets or powders equal to the minimum dose sufficient for prophylactic purposes, with directions that the single dose should be repeated a certain number of times at specified intervals as a cure. It is essential, he thinks, that it should be recognised that the distribution of quinine cannot be made self-supporting, and in view of economy, if for no other reason, very careful inquiries will be necessary regarding the needs of different localities. In many places no quinine is necessary at all; in others it is required only for a short time in certain years; in others it is required every year, but only at a certain season; and in yet others there is need for its continuous use. Although our knowledge of the etiology of malaria and its treatment is fairly extensive, it is still wanting as regards (*a*) the best agency for the distribution of quinine, and (*b*) the causes of disease and death as well as the distribution of the disease in a district. There is reason to hope, however, that a permanent organisation for dealing with these and other matters relating to malaria in India will shortly be established as a result of the recent Malarial Fever Congress that met at Simla.

Vaccination.

The total vaccinations performed during the year were 9,123,262, a decrease compared with the previous year of 46,511. The percentage of success attained in primary vaccinations was 97·47, and in revaccinations 73·44. The total cost of the vaccination department was Rs.15,10,536 (£100,702 8*s.*). The mean cost of each successful case was 2 annas 10 pies (nearly 3*d.*). The more important changes concerning the lymph-supply were the closing of the lymph depôt at Lucknow and the opening of a new depôt at Belgaum, whence preserved lymph will be distributed throughout the Bombay Presidency, including Scind, and the introduction of payment for all vaccine lymph issued by the Punjab depôt, to prevent undue waste by demands in excess of requirements.

General Remarks.

Under the above heading of the Sanitary Commissioner's report an account is given of the Red Sea pilgrim traffic and the sanitary measures undertaken to prevent infective diseases

[1] THE LANCET, May 7th (p. 1289), 14th (p. 1369), and 21st (p. 1434), 1910.

being imported into India. Some interesting remarks on the subject of cholera carriers are made with reference to the occurrence of some cases of cholera amongst the pilgrims. The water-supply of the ships carrying the pilgrims was examined bacteriologically and found pure. The diagnosis of cholera in those attacked was established bacteriologically and the problem was, Where did they become infected? Dr. Delpino, the Director of the Quarantine Station at Camaran, believed that the germs of cholera were brought from India in the intestines of the pilgrims themselves, and he attributed the outbreak to a *microbisme latent*. As far back as 1893 it was pointed out by Günther, Rumpel, and Koch that in times of cholera epidemics a considerable proportion of the people exposed to infection carry the cholera vibrios in their intestinal system without manifesting any sign of the disease. Such carriers are temporarily or permanently immune, and it is a generally accepted belief that when the germs carried by them reach a susceptible host they give rise to cholera, which then spreads from the second host in the ordinary way. Dr. Delpino appears to be of the opinion that the vibrios carried by the Indian pilgrims were not virulent, and that for some reason they became virulent at Camaran and caused attacks of cholera in the carriers themselves. Apart from the circumstances of the cases amongst the pilgrims of one of the ships, he was supported in his belief by the discovery of true cholera vibrios in the stools of two pilgrims from another of the ships, who were in hospital on account of intestinal catarrh and dysentery respectively, and in the stools of a pilgrim from the ship on which the cholera cases occurred, who was in hospital suffering from slight catarrhal dysentery. None of these three pilgrims showed any sign of cholera. It is true that cholera vibrios were not found in the stools of those attacked before their attack, but such a discovery has been made elsewhere. Professor W. Kolle has found cholera vibrios in the apparently normal dejections of two members of a family in which a case of cholera had occurred. These two carriers were removed to a hospital where infection was out of the question, and several days afterwards they developed a fairly severe and a slight attack of cholera respectively. It would appear that cholera carriers range between two extreme conditions: those whose escape is due to immunity owing to an idiosyncrasy that protects them against virulent vibrios, and those who, although susceptible, escape because the vibrios harboured by them are not virulent. The first class are a danger to the community in which they live so long as they continue to excrete virulent vibrios; the second class do not become dangerous until some cause, specific or otherwise, confers virulency on the vibrios they are carrying.

The Sanitary Commissioner next reviews the work done at the different Government laboratories in India, which include the Central Research Institute at Kasauli, the Bombay Bacteriological Laboratory, the King Institute of Preventive Medicine, Madras, and the Pasteur Institutes at Kasauli and Coonoor. At all of these institutions good work has been done, and the Sanitary Commissioner is to be congratulated on the hardworking staff of officers over whom he presides. Reference is finally made to the origin, scope, and line of scientific investigations of the Imperial Malaria Conference held at Simla in October, 1909, and to the recent additions to the scientific memoirs published by the Sanitary Commissioner with the Government of India.

PUBLIC HEALTH PROGRESS IN THE PHILIPPINES.

MOST of our readers are well acquainted with the great improvement in public health which has followed the efforts of the medical officers of the United States Government in Cuba and in the Panama Canal Zone of late years mainly by the use of the most modern methods known to science for preventing the occurrence of tropical and other diseases. Public attention has not been directed in a like degree to the similar success which has followed the use of the same methods in America's Asiatic dependency, the Philippine Islands. For this reason the report of the Bureau of Health for the Philippines by Dr. Victor G. Heiser, director of health, is of more than usual interest, and fits well with the delivery of Mr. Roosevelt's Romanes Lecture (see p. 1629).

Since the American occupation of the islands no effort has been spared to improve the conditions under which the population live, and this has been done in spite of passive resistance due to the idleness, apathy, and indifference of many of the inhabitants. One marked result already obtained has been the reduction of the annual mortality rate among the employees of the Government to the low figure of 8·62 per 1000. It is generally anticipated that if all the rules and regulations made by the Health Bureau could be enforced among the general population there would be a similar reduction in their death-rate. As was natural, the evidences of progress are more apparent in Manila, the capital of the islands, than in the provinces. This city, which has an estimated population of 223,542, has been recently provided with a new public water-supply, conveyed by gravitation from an uninhabited gathering ground, yielding 100 gallons per day to every man, woman, and child in the city, and estimated at a cost of over $3,000,000, practically to insure the inhabitants against any serious outbreak of cholera or other water-borne disease. A new sewage scheme has also been carried out, placing Manila, as Dr. Heiser says, in the front rank of oriental cities as regards sewage disposal. Aided by public sentiment, which had latterly been stirred by the reports of the Bureau of Health, much progress has been made in the direction of town planning in the suburbs and in the improvement of the housing accommodation of the poorer classes. No fewer than 3000 of these persons have been recently removed from filthy and congested areas in which there existed no streets or surface drains, where the houses were so closely huddled together that no garbage cart could come near, and where the inhabitants were in the habit of deliberately tossing their excrement out of the windows rather than take the trouble to walk to the public latrine provided for their use. These people are now transferred to houses erected on a new area carefully planned, with properly laid out streets and surface drains, and provided with public baths, laundry, and latrines, as well as having water hydrants placed at proper intervals. Similar improvements, though on a smaller scale, have been carried out in some of the provincial towns, where some 80 artesian wells have recently been sunk. Already the measures prescribed against leprosy have borne fruit, and there has been a diminution in the amount of the disease. It is worthy of mention in this connexion that Mr. Moses T. Clegg, of the Philippine Bureau of Science, has discovered what has long been sought for—namely, a method of cultivating the bacillus of leprosy in artificial media. This discovery is said by Dr. Heiser to give hope that a serum or vaccine will now be obtainable for the treatment of this loathsome disease. An active campaign has also been carried out against ankylostomiasis, or, as it is termed by the American authorities, "hookworm disease," and already many thousands of persons have been relieved of their parasites. Although not far short of 1000 deaths were attributed to beri-beri, yet in the institutions controlled by the Bureau the disease has practically disappeared, through the reduction of the rice in the ration and substituting for it more varied articles to the diet. Amœbic dysentery still retains the first place in the Philippines as the white man's worst enemy. More permanent disability is caused by it, more time is lost through it, and more persons are compelled to leave the islands from this cause than from all the other tropical diseases combined. And yet Dr. Heiser says the ailment is almost unknown among those who use the simple precautions of washing their hands immediately before eating, who only drink water that has been boiled, and who do not eat in a raw state certain low-growing vegetables.

Though much has been done to improve the public health much remains yet to be done. The course which the Bureau of Health proposes to maintain is sketched out at the conclusion of the report. Attempts will continue to be made to improve general sanitary conditions, especially by providing improved water supplies; by enforcing vaccination—1,817,872 persons were vaccinated in the fiscal year; by isolating lepers; by eliminating intestinal parasites which infest the majority of the Philippino population; by systematic warfare against tubercle bacilli, funds for an antituberculosis crusade having now been secured; by eradication of malarial mosquitoes; and by securing better hygiene for infants, for which purpose a grant of money has been made to the Bureau by Government, so that now aid can be given to those societies which have for their object the protection of infant life. In addition to all this work in the prevention of disease and

the dealing with epidemics of cholera and small-pox during the past year, the Bureau of Health is charged with the supervision of the sanitation of prisons, with the management of the newly erected general hospital in Manila and the free dispensaries in that city for the cure of disease, and under it medical and surgical relief has been furnished during the year to many thousands of persons. The Bureau is also largely concerned in the administration of the public charities of the capital.

The health officers in the Philippines are the district medical officers of health, and some of the same difficulties which have been recognised in this country have arisen as regards their tenure of office. Progress is hindered in some measure by the apathy and indifference of many of the municipalities throughout the islands. Each municipality possesses a health officer, but even when this official tries his best to spur his council into action the members often prefer to waste valuable time in factional disputes or in futile and protracted discussions on such a subject, for example, as the comparative value of Guava-water or carbolic acid as an efficient disinfectant. It is not easy for a health officer, when he conscientiously performs his duty, to avoid giving offence to one or other faction in his council. To punish him it is a favourite procedure to reduce his salary to the lowest limit. Dr. Heiser asserts that so long as a health officer is at the mercy of one or another of the factions in his council, an entirely impartial discharge of his important duties cannot be expected of him. To remedy this Dr. Heiser proposes that the scheme recently adopted in Cuba should be put in force in the Philippines—viz., each municipality to have a health officer, or acting health officer, appointed by the director of health, and paid from the Insular Treasury, the Insular Government being reimbursed by the municipality the amount of salary paid. If the municipality is too small or too poor to pay a sufficient salary by itself to attract a competent officer several municipalities should be combined compulsorily to form a district to be served by a joint health officer. Similar arrangements are suggested for the appointment of sanitary inspectors. Another very important point is emphasised by Dr. Heiser; all the locomotion expenses of these health officers and sanitary inspectors should, in his opinion, be defrayed by the municipalities. In this way prompt visits in emergencies would be more likely to be paid by the officials, and systematic inspection of outlying areas would be more surely secured. Frequent visits are often necessary in the public interests, but it is a great call upon an official with a moderate salary in a wide district to expect him to pay these frequent visits when he has to lay out considerable sums in travelling expenses from his own pocket.

In conclusion, we may add that this most interesting and comprehensive report is illustrated by a number of photographic reproductions which give the reader a very good idea of the conditions described in the text, more especially as regards the hovels and the insanitary areas to which reference is made.

Looking Back.

FROM

THE LANCET, *SATURDAY*, June 9th, 1832.

APPLICATION OF

GASTRIC JUICE

TO THE PURPOSES OF MEDICINE.

To the Editor of THE LANCET.

SIR,—The observations I am about submitting to your consideration, first originated by my perusing in your Journal a short time since some very trite remarks on the gastric juice, and the application of the gastric juice of animals in the cure of certain diseases of the stomach, such diseases being supposed to owe their origin to a scarcity of the necessary juice for the usual digestive process. I well remember your correspondent cited some very satisfactory results from the employment of the animal juice.

After I had attentively considered the subject, the thought struck me, that as gastric juice was a fluid, which it was difficult if not impossible to procure, some other preparation may in its stead be instituted; but as it was an animal production, I was on the point of giving up the subject, not being possessed of chemical apparatus sufficient to moot the matter to the base, when happening to dine that day with some professional friends, the subject of the formation of cheese was brought on the carpet, as well as on the table; one idea led to another, and after returning to my study, I briefly recapitulated the substance of our conversation. One observation of my friend at the time particularly struck me; he stated, that "a liquid called rennet (which was formed from what are commonly called Irish vells, such articles being nothing more or less than the stomachs of calves salted) was dropt into milk, which immediately from its acidity produced a decomposition of its parts; the thicker was precipitated, commonly called curds, and a thin serous fluid formed on its surface denominated whey; he further stated, that it was a generally-received thing among men of agricultural research, that the gastric juice of the vell which produced the decomposition." Now, Sir, my hypothesis is of a very simple nature; we all know albumen is decomposed by acids, therefore what can produce the decomposition in milk if there be not an acid present? And what can that acid be, but the gastric juice contained within rennet? We all know that gastric juice is acetous in a high degree, which proves at once that it can be no other than the real gastric juice of the calf which constitutes the active effect to be found in rennet. I have not, Sir, since forming the above conclusion had a case under care in which I could employ the rennet, but I do not hesitate a moment in giving my opinion, that in those diseases of the stomach in which there is a deficiency of the gastric juice (which frequently occurs in dyspepsia), the employment of rennet would be of material advantage; at least I speak from supposition. Amongst the ranks of the profession, if any gentleman be found who will give his especial attention to this subject, he will merit the thanks of the lovers of science I am well assured. And now, Sir, I must apologise for having so long trespassed on your favour; and having introduced this subject to the attention of the profession, I beg leave to bequeath it to abler and more efficient hands; and believe me, Sir, to remain your obliged humble servant,

Hants, May 16th, 1832. G. J. P.

BRITISH MEDICAL BENEVOLENT FUND.

AT the May meeting of the committee 14 cases were considered and grants amounting to £131 made to 12 of the applicants. Appended is an abstract of the cases relieved:—

M.R.C.S., aged 71 years. Quite incapacitated by senile gangrene and dependent on children who can ill afford to help. Voted £10.

Widow, aged 40 years, of M.B., C.M. Edin. Only income £15 a year interest on insurance money. Four children, aged 11 years to 3 years. Voted £10.

Widow, aged 48 years, of M.R.C.S. Has maintained herself by keeping a boarding-house since husband's death, but has had a bad season and asks for a little help towards the education of her children. Voted £10.

Widow, aged 41 years, of M.R.C.S. Husband died a few weeks ago and so far has been unable to sell the death vacancy. Income £14 per annum. No children. Voted £5.

Widow, aged 54 years, of L.R.C.P. Edin. Quite unprovided for at recent death of husband; children unable to help and one still at school. Voted £10.

Daughter, aged 47 years, of late M.D. Aberdeen. Has supported herself by assisting in a boarding house kept by her mother recently deceased, and asks for help towards unavoidable expenses of the illness. Voted £10.

L.R.C.P., L.R.C.S. Edin., aged 50 years. Lost his sight a few years ago and is dependent on his wife who lets lodgings. Four children aged 15 to 10. Relieved twice, £36. Voted £18.

Daughter, aged 65 years, of late M.R.C.S., L.S.A. Acted as housekeeper for a brother until his death in 1890 and then qualified as a maternity nurse, but now finds extreme difficulty in obtaining engagements. Relieved once, £12. Voted £12.

Daughter, aged 50 years, of late M.R.C.S., L.S.A. Suffers from chronic glaucoma and dependent on slight help from friends and occasional earnings as a nurse. Relieved twice, £15. Voted £10.

Daughter, aged 59 years, of late M.R.C.S., L.S.A. Earns about 5s. a week by needle-work and receives the same amount from friends. Relieved three times, £42. Voted £12.

Daughter, aged 67 years, of late M.D. Lond. Maintained herself as a governess for more than 40 years, but is now quite incapable of work. Relieved twice, £24. Voted £12.

Widow, aged 70 years, of M.D. Edin. Dependent on a small weekly allowance given locally and earns a few shillings occasionally by knitting. Children unable to help. Relieved six times, £69. Voted £12.

Contributions may be sent to the honorary treasurer, Dr. Samuel West, 15, Wimpole-street, London, W.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 77 of the largest English towns 8778 births and 3836 deaths were registered during the week ending June 4th. The annual rate of mortality in these towns, which had been equal to 12·4 and 12·7, per 1000 in the two preceding weeks, declined to 11·8 in the week under notice, and was considerably lower than in any previous week of this year. During the first nine weeks of the current quarter the annual death-rate in these towns averaged only 13·4 per 1000, and in London during the same period it was so low as 13·0 per 1000. The lowest recorded annual rates of mortality during last week in these 77 towns were 3·1 in King's Norton, 3·3 in Walthamstow, and 4·3 in Handsworth, all being suburban districts; the rates in the other large towns ranged upwards, however, to 17·0 in Bootle, 18·2 in Liverpool, 18·4 in Merthyr Tydfil, and 19·9 in Oldham. In London the recorded death-rate did not exceed 11·6 per 1000. The 3836 deaths registered last week in the 77 towns showed a further decline of 306 from the low numbers in recent weeks, and included 369 which were referred to the principal epidemic diseases, against 400 and 424 in the two preceding weeks; of these 369 deaths, 141 resulted from measles, 122 from whooping-cough, 46 from diarrhœa, 27 from diphtheria, 21 from scarlet fever, 10 from enteric fever, and 2 from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 1·1 per 1000, against 1·2 and 1·3 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Sunderland, Walthamstow, Brighton, Derby, and in 16 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·9 in Smethwick and in Stockton-on-Tees, 3·8 in Burton-on-Trent, and 3·9 in Merthyr Tydfil. The fatal cases of measles in the 77 towns, which had been 141 and 157 in the two preceding weeks, declined again last week to 141, but caused annual rates equal to 1·9 in Blackburn, 2·8 in Burton-on-Trent, and 3·9 in Merthyr Tydfil. The 122 deaths from whooping-cough showed a decline of 37 from the number in the previous week; the highest annual rates from this disease last week were 1·4 in Smethwick and in Wallasey, and 1·7 in Huddersfield. The 46 deaths attributed to diarrhœa were fewer by three than those in the previous week. The fatal cases of diphtheria, which had been 37 and 20 in the two previous weeks, were 27 last week, of which 6 occurred in London and its suburban districts, 2 in Manchester and Salford, 2 in Liverpool, and 2 in Hull. Of the 21 deaths from scarlet fever, 4 were returned in Birmingham and 2 in Coventry. Only 10 deaths in the 77 towns were last week referred to enteric fever, including 2 in Portsmouth. Of the 2 fatal cases of small-pox, 1 each occurred in South Shields and Cardiff. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined in the 33 preceding weeks from 2810 to 1445, had increased to 1461 on Saturday last; 203 new cases of this disease were admitted to these hospitals during last week, against 190 and 174 in the two preceding weeks. Of the 1087 deaths registered in London during last week 174 were referred to pneumonia and other diseases of the respiratory system, and were 17 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 31, or 0·8 per cent., of the deaths registered in the 77 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Bristol, West Ham, Bradford, Newcastle-on-Tyne, Hull, Nottingham, Salford, and in 51 smaller towns; the 31 uncertified causes of death in the 77 towns last week included 5 in Liverpool, 4 in Sunderland, 3 in Gateshead, and 2 each in Reading, Sheffield, and Barrow-in-Furness.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 954 births and 517 deaths were registered during the week ending June 4th. The annual rate of mortality in these towns, which had been equal to 15·5 and 14·0 per 1000 in the two preceding weeks, rose again to 14·3 in the week under notice. During the first nine weeks of the current quarter the death-rate in these towns averaged 16·1 per 1000, and exceeded by 2·7 the mean rate during the same period in the 77 large English towns. The annual death-rates last week in these eight Scotch towns ranged from 9·6 and 11·4 in Aberdeen and Edinburgh, to 15·6 in Greenock and 20·2 in Dundee. The 517 deaths from all causes in the eight towns during last week showed an increase of 11 upon the number in the previous week, and included 50 which were referred to the principal epidemic diseases, against 80, 63, and 62 in the three preceding weeks. These 50 deaths were equal to an annual rate of 1·4 per 1000; the mean death-rate from the same diseases in the 77 English towns last week did not exceed 1·1 per 1000. These 50 deaths in the Scotch towns last week included 20 from measles, 15 from diarrhœa, 7 from whooping-cough, 3 from scarlet fever, 3 from "fever," and 2 from diphtheria, but not one from small-pox. The fatal cases of measles in the eight towns, which had declined from 52 to 33 in the four preceding weeks, further fell last week to 20, of which 9 occurred in Dundee, 7 in Paisley, and 2 in Edinburgh. The 15 deaths attributed to diarrhœa corresponded with the number in the previous week, and included 7 in Glasgow. Of the 7 deaths from whooping-cough, an increase of 2 upon the number in the previous week, 4 were returned in Glasgow and 2 in Dundee. Two of the 3 fatal cases of scarlet fever, and both the deaths from diphtheria, occurred in Glasgow. Of the 3 deaths referred to "fever," 2 were returned in Glasgow and 1 in Leith; 1 (in Leith) was certified as typhus, and 1 each as enteric and cerebro-spinal meningitis in Glasgow. The deaths in the eight towns referred to diseases of the respiratory system, which had been 98 and 80 in the two preceding weeks, were 82 in the week under notice, and were 11 below the number returned in the corresponding week of last year. The causes of 19, or 3·7 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 704 births and 397 deaths were registered during the week ending June 4th. The mean annual rate of mortality in these towns, which had been equal to 19·5 and 21·1 per 1000 in the two preceding weeks, declined to 18·0 in the week under notice. During the first nine weeks of the current quarter the annual death-rate in these Irish towns averaged 21·2 per 1000, whereas the mean rate during the same period did not exceed 13·4 in the 77 largest English towns and 16·1 in the eight principal Scotch towns. The annual death-rate during last week was equal to 15·7 in Dublin, 22·1 in Belfast, 16·4 in Cork, 13·2 in Londonderry, 17·8 in Limerick, and 31·2 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish town districts was equal to 14·2 per 1000. The 397 deaths from all causes in the 22 town districts last week showed a decline of 70 from the number returned in the previous week, and included 58 which were referred to the principal epidemic diseases, against 59 and 50 in the two preceding weeks; these 58 deaths were equal to an annual rate of 2·6 per 1000; in the 77 English towns the mean rate last week from the same diseases did not exceed 1·1 per 1000, while in the eight Scotch towns it was equal to 1·4. The 58 deaths from these diseases in the Irish towns last week included 39 from measles, 11 from whooping-cough, 5 from diarrhœa, and 3 from scarlet fever, but not one from diphtheria, "fever," or small-pox. The fatal cases of measles in the 22 town districts, which had been 45 and 33 in the two previous weeks, rose again to 39 last week, of which 38 occurred in Belfast. The 11 deaths from whooping-cough also showed an increase, and included 7 in Belfast and 2 in Dublin. Three of the 5 deaths attributed to diarrhœa were returned in Belfast; and of the 3 fatal cases of scarlet fever, 2 occurred in Dublin and 1 in Belfast. The deaths in the 22 towns referred to pneumonia and other diseases of the respiratory system, which had been 84 and 90 in the two preceding weeks, declined to 75 in the week under notice. The causes of 14, or 3·5 per cent., of the deaths registered in the Irish towns last week

were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent., while in the eight principal Scotch towns it was equal to 3·7 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Order in Council of April 1st, 1881, Staff-Surgeon Ernest Stewart Reid has been placed on the Retired List (dated May 26th, 1910).

The following appointments are notified:—Fleet-Surgeon: W. W. Pryn to the *President*, additional, for three months' hospital course. Staff-Surgeons: H. C. Whiteside to the *Circe*, temporarily; J. G. Peebles to the *Natal;* and J. G. Watt and N. J. Roche to the *King Alfred*, additional. Surgeons: C. G. Sprague to the *Vivid*, additional, for disposal; W. P. Yetts to Chatham Marines; J. J. H. Rooney to Gibraltar Hospital; O. M. W. Hearn to the *Victory*, additional, lent to Physical Training School, and to the *Victory*, additional, for Physical Training School; S. H. Vickery to the *Vindictive;* and J. L. Barford to the *Impregnable*.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel Charles H. Burtchaell, R.A.M.C., to be Assistant Director-General, vice Lieutenant-Colonel J. M. Irwin, whose tenure of that appointment has expired (dated June 1st, 1910).

ROYAL ARMY MEDICAL CORPS.

The undermentioned Lieutenant-Colonels retire on retired pay (dated June 4th, 1910): James H. Curtis and William B. Day.

Lieutenant-Colonel G. G. Adams, from Cosham, on arrival in India, has been appointed to command the station hospital at Hyderabad, Sind. Major E. T. Inkson, V.C., has been transferred from St. Thomas's Mount, Madras, to the station hospital at Bangalore. Major C. J. O'Gorman, D.S.O., from Scarborough, has on arrival in India been posted to Nowshera for duty. Captain M. Sinclair, from Sialkot, has been posted to the Irish Command and appointed to Cork District. Captain W. J. Waters, from Devonport, has been transferred to Crownhill. Captain H. A. Davidson, from Queenstown, has been posted to Buttevant. Captain R. N. Woodley has taken up duty at Bulford Camp, Salisbury Plain, from Cahir. Captain A. J. Hill, lately commanding the station hospital at Jutogh, has, on arrival home, tour-expired, been appointed to the Eastern Command. Captain P. G. Hyde has been transferred from Queenstown to Dublin District. Captain A. R. C. Parsons has arrived home on leave from West Africa. Captain A. M. MacLaughlin has been posted to the London District. Lieutenant F. J. Stuart, from Chatham, on arrival in India, has been posted to the station hospital at Lucknow. Lieutenant J. B. Hanafin, from Cork, has joined at Rawalpindi for a course of sanitation.

INDIAN MEDICAL SERVICE.

Colonel D. ffrench-Mullen, Deputy Principal Medical Officer, His Majesty's Forces in India, has arrived home on eight months' combined leave. Colonel C. J. Bamber, Sanitary Commissioner of the Punjab, has been appointed to officiate as Inspector-General of Civil Hospitals in the Punjab, vice the Hon. Colonel T. E. L. Bate, C.I.E., on leave. The services of Major S. A. Harris, Deputy Sanitary Commissioner, First Circle, United Provinces, have been replaced at the disposal of the Government of India, Home Department. Major S. Hunt has been granted seven months' leave combined with furlough. Major P. Dee and Major J. Mulvany have arrived home on leave. Major T. H. Symons, Madras, has had his leave extended. The services of Captain D. C. V. Fitzgerald, Officiating Civil Surgeon, Sibsagar, Eastern Bengal, have been replaced at the disposal of the Government of India. The Lieutenant-Governor of the Punjab has appointed Captain N. H. Hume, Officiating Superintendent of the District and Female Jails at Lahore, to act as Civil Surgeon and Superintendent of the Central Jail at Montgomery, Punjab, during the absence on leave of Captain J. E. Clements. Captain W. McH. Pearson has arrived home on leave. Captain A. Cameron has been appointed for special duty in connexion with the prevention of plague in the Punjab.

TERRITORIAL FORCE.

Royal Army Medical Corps.

2nd East Lancashire Field Ambulance: Lieutenant-Colonel John J. K. Fairclough resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform (dated May 1st, 1910).

Highland Mounted Brigade Field Ambulance: Lieutenant-Colonel John Macdonald reverts at his own request to the rank of Major (dated April 5th, 1910). Major John Macdonald resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform (dated April 6th, 1910).

For attachment to Units other than Medical Units.—John Tait to be Lieutenant (dated June 30th, 1909). William John Harrison to be Lieutenant (dated April 29th, 1910). Cuthbert Delaval Shafto Agassiz to be Lieutenant (dated April 30th, 1910). Francis Dawson Blandy to be Lieutenant (dated May 3rd, 1910).

Attached to Units other than Medical Units.—Captain Charles W. Crawshaw resigns his commission (dated April 30th, 1910).

THE BRITISH RED CROSS SOCIETY.

Nearly 200 women and 300 men, employees of the Prudential Insurance Company, Limited, Holborn, W.C., have signified their intention of joining first-aid classes and subsequently detachments of the City of London Branch of the British Red Cross Society.

We understand that efforts are being made to form a detachment of Scottish women to be attached to the London Scottish Regiment of Territorials.

Correspondence.

"Audi alteram partem."

THE ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.

To the Editor of THE LANCET.

SIR,—On behalf of the Council of the Association of Medical Officers of Health we ask your earnest attention to the following statement:—

(i.) On July 22nd next, and following days, the Representative Meeting of the British Medical Association will assemble in London.

(ii.) As a result of action taken by our Association, the representatives of the Richmond, Rochdale, and Salford Divisions of the British Medical Association will, at this meeting, move *the rescission of Minute 234* (1909).

It is of the utmost importance, therefore, that no effort should be spared to place the true facts of our case before the various divisions in order that the Richmond, Rochdale, and Salford representatives be sufficiently supported.

(iii.) The representative of the Salford Division will move—

> "That in every form of public medical service the system of part-time appointments of medical practitioners should be maintained as far as such appointments can be made consistently with the requirements of the services, and that all public medical officers should be protected in carrying out their duties, should be secured from capricious dismissal or reduction of salary, and should be allowed to participate in any superannuation scheme approved by a Local Government Board."

We agree most cordially with the spirit of this motion, and trust you will do all in your power to ensure its adoption, in the interests, not only of part-time medical officers of health, but of Poor-law medical officers, public vaccinators, and others whose appointments may be imperilled or threatened.

(iv.) The Public Health Committee of the Central Council of the British Medical Association, although originally instructed to delete from the Public Health Officers Bill all reference to security of tenure for

part-time medical officers of health, have now so far modified their position as to suggest that the Local Government Board "may" insist upon the same terms of appointment for part-time medical officers of health (in cases where the Board shall deem it desirable) as are proposed for whole-time officers.

Our Council has unanimously resolved that to distinguish, in respect of tenure, between part-time and whole-time medical officers of health is, in the public interest, undesirable; and has decided to oppose in Parliament any Bill which seeks to introduce such distinction.

(v.) Mr. F. E. Fremantle, F.R.C.P., F.R.C.S., county medical officer of health for Hertfordshire, proposes to read, before the Section of State Medicine, at the meeting of the British Medical Association in July, a paper on "The Work of the Part-time Medical Officer of Health," and to move:—

"That part-time medical officers of health have in the past played a most important part in the advancement of public health; that their special clinical experience, their personal intimacy with patients, and their comparative financial independence give them exceptional opportunities for securing acceptance of their views; and that the interests of public health will be best promoted by securing a better education of all medical men in public health work than in making any rule to separate preventive from curative work in the activities of the medical profession."

It is particularly hoped that plenary support will be given to Mr. Fremantle, both by attendance and in debate.

(vi.) It has been arranged to hold a general meeting of our Association, in connexion with that of the British Medical Association, on July 29th. The exact time and place will be announced later, but a full attendance is looked for, as an opportunity will arise for discussing the decision which will, by then, have been arrived at by the Representative Meeting in respect of Minute 234 and the consequent notices of motion.

(vii.) A dinner will be held at the Holborn Restaurant on Friday, July 29th, at 7.30 P.M. Tickets, 5*s.* 6*d.* each, exclusive of wine. The presence of official guests of influence and distinction is expected, and the Council will be much assisted if gentlemen who propose to attend (with or without bringing personal guests) will kindly notify their intention by card as early as possible in June to the hon. secretary, Dr. Belilios, Queen's-road, Wimbledon, S.W.

We are, Sir, yours faithfully,

F. G. CROOKSHANK, Chairman.
D. A. BELILIOS, Hon. Secretary.
E. G. GIBBS-SMITH, Hon. Treasurer.
} The Association of Medical Officers of Health.

London, S.W., June 1st, 1910.

THE OPERATION FOR CLEFT PALATE.

To the Editor of THE LANCET.

SIR,—The letters of Mr. T. H. Kellock and Mr. R. W. Murray in the recent issues of THE LANCET on this subject are of great interest. I quite agree with Mr. Murray that it would be very instructive if those surgeons who advocate the early flap operation would bring forward their patients and show us the results of the operation. But I am afraid we shall have to wait, for a short time ago, with a view to investigating the after results of the early flap operation and to compare them with those of operations performed at a later period of life, I requested permission to examine the records of one of the children's hospitals in London, where I understand this operation is frequently performed. It would almost appear as if the results were not so brilliant as we have been led to believe. Otherwise it is difficult to understand the reticence of the advocates of the early flap operation to bring forward their cases or to allow an impartial, and, I hope, a scientific, investigation to take place. It is possible, however, that we may have a full report from this hospital, as I was told "it seems likely that some of the staff will utilise the same material."

At the Leicester meeting of the British Medical Association in 1905 Mr. James Berry read a paper on 67 consecutive cases he had operated on by the older method at ages varying from 2 years to 16 years, and he showed a number of his patients, thereby allowing everyone to judge for himself what his results were. Surely it ought not to be impossible in London to get together a number of cases of the early flap operation and enable everyone to see how badly or how well the patient speaks. A comparison of the two sets of cases would also be possible. In the early part of this year I saw two children of 10 years who had been operated on in London at three years of age by the flap method, and certainly the results, neither as regards speech nor the closure of the cleft, encouraged me to depart from the older method of operating. Possibly these are two more exceptionally bad examples. The mere closure of the cleft is not the most important thing: to give the patient a freely moveable well-formed soft palate is what should be always aimed at, and how is a flap composed of mucous membrane only to do this? I am, Sir, yours faithfully,

Harley-street, W., June 6th, 1910. T. P. LEGG.

IS APPENDICITIS CONTAGIOUS?

To the Editor of THE LANCET.

SIR,—In the *Times* of a few days ago appeared a short paragraph stating that the medical officer of health for the Farnham rural district had reported to the council that appendicitis had increased in his district to an alarming extent. The increase of the disease is only too well known, and most practitioners of medicine must be fully alive to the fact, but, so far as I know, the statement alluded to above is the first indication that the disease may so decidedly affect a limited district or locality. We all recognise the fact that there is, and has been for some ten years, a very marked increase in the prevalence of the disease, but I question whether it is as generally recognised that the type of the disease has altered and that the specific virulence has also altered and increased.

In a clinical lecture on appendicitis given by me at the West London Hospital in February, 1897, I spoke of those attacks of sudden acute onset usually associated with an appendix rapidly becoming gangrenous, and I remarked that, based on an experience of some 20 years of active hospital work, such cases were happily comparatively rare, and that but few had come under my personal care. An old house physician of about that period stated that during his six months of office, as far as he could remember, no case of the character had been under his care. Gradually a change of type supervened, and within a few years of the date of making the statement I have just quoted, instead of seeing case after case of appendicitis running a simple benign course and speedily recovering under medical treatment, we have been called upon to deal with a vast number in which a rapidly sloughing or gangrenous appendix necessitated immediate operation, and it would not be an exaggeration to say that whereas in the "seventies" and "eighties" those cases were only met with comparatively rarely, they are now of almost daily occurrence.

Many reasons have been assigned from time to time as causes for the remarkable increase of the disease. It is not my intention to discuss them; one and all they appear to me to be insufficient to explain as a common cause an illness appearing under such a multitude of varying conditions. But if we recognise that with a marked increase of the disease there has also been a change of type as regards its virulence, and that within the memory of many now living a disease which formerly ran a fairly constant benign course under a simple medical treatment has become not only far more frequent but has also assumed a much more serious form, it seems to me to afford a hypothesis which may give a clue to the true underlying cause of the disease, and justifies the assumption that in appendicitis we are dealing with the local effect of a pernicious organism, possibly but a virulent variety of the bacillus coli communis, the organism affecting a locality or nidus which by its anatomical position produces, when affected by a destructive lesion, such disastrous consequences.

Have we not in the behaviour of another pernicious organism, that of diphtheria, a somewhat analogous course? Fifty years ago it was a comparatively rare disease, and if we take the clinical description as given by the late Sir William Jenner in his classical lecture delivered in 1861, not only presenting different clinical aspects, but of a vastly

more dangerous type; of 58 cases seen by Jenner, 34 proved fatal. Even if we grant to the full the influence of antitoxin we must acknowledge that in the "fifties" and "sixties," and according to Trousseau and other writers at a much earlier date, the specific virulence of the organism was far greater than as seen at the present day. "Tear off the lymph," writes Jenner, "and you will expose a bleeding surface which in a few hours will be re-covered with lymph."

In the early days of practice I saw many such cases, but are they common now? Is it not true that the disease as bacteriologically determined is far more common, far less dangerous to life, and with less pronounced physical characters than in former years? The tough wash-leather membrane upon which so much stress was laid in making a diagnosis has been replaced in a vast number of cases by a soft molecular, pultaceous secretion which frequently cannot by naked eye be differentiated from the simple discharge seen smearing the tonsils in ordinary follicular tonsillitis. I believe clinical knowledge will support the view I hold that in diphtheria we have a disease produced by a pernicious organism, and, moreover, affecting by choice a limited anatomical area—a disease which within memory of many now living, from being of comparative rarity and of great specific virulence, has gradually become vastly more common and of a far less severe type. Moreover, with the diminished virulence there is in a large proportion of cases a marked difference in the physical signs which were considered as being pathognomonic of the disease.

Appendicitis has without a shadow of doubt become within a few years vastly more common; not only has it become more frequent but it has assumed a far higher degree of intensity or virulence. It appears that there is a tendency for the disease to affect certain families, and many cases are known to occur in the same households. If the disease be due, as I believe it to be, to the effect of microbic influence, the micro-organism affecting the host may under certain conditions be conveyed from individual to individual, and we must regard appendicitis as being contagious.

I am, Sir, yours faithfully,

June 4th, 1910. DONALD W. C. HOOD.

CANCER AND ITS EARLY TREATMENT.

To the Editor of THE LANCET.

SIR,—I believe it is fairly correct to state that on an average one out of ten persons over the age of 35 is destined to die from cancer. It is also true that surgery offers the only possible cure and everything depends upon early treatment. Now, Sir, it seems to me the acme of stupidity to bemoan the fact that most patients only seek treatment when they are beyond hope when we do absolutely nothing to disseminate certain simple information which, did they but possess it, would cause these people to obtain early advice.

We allow the public to associate cancer with pain when we know ourselves that the condition is usually painless in its early and curable stages. We still let women imagine that irregular discharge and hæmorrhage are natural conditions at the time of the climacteric. Obstinate and increasing constipation, occurring for *the first time over the age of 40*, ought to indicate a possibly serious state of affairs. Similarly, rectal hæmorrhage and discharge should not be *thought* to be due to "piles," but the individual affected should know that he ought to make sure about it. Personally, I think all women who believe "the change of life" is taking place should consult their medical man to ascertain if the symptoms are really due to this, and if so they should be seen once in three months until the patient is well over this dangerous time. There are signs and symptoms which, although not necessarily indicating cancer, are so suggestive as to make it absolutely necessary that advice should be obtained without delay, and if a knowledge of these "danger signals" were common property we should, I am convinced, have a very much reduced death-rate.

I would suggest that a carefully thought-out notice containing the necessary information in appropriate language should at regular intervals be published in the lay press. There are two possible objections to this: we might cause the public to become unnecessarily scared, and the required information might be considered too indelicate for publication. To the first objection I would reply that medical men are not unduly nervous about themselves, that it would be easy for a nervous person to get his mind set at rest, and lastly, and above all, that the ill-results of the unnecessary alarm in a few neurotic individuals would be overwhelmingly counterbalanced by the good that would result from the early treatment and hopeful outlook of many victims who would have otherwise been beyond help. To the second objection we might retort that a knowledge of cancer symptoms is not one whit more disagreeable than is the subject matter of the advertisements of quack pills and potions, and it would be *for the benefit of humanity*, whereas the quack advertisements are unpleasant reading, hoodwink the public, and benefit no one except a select number of unscrupulous individuals.

I think everyone will agree that the public ought to know more, but there is likely to be a difference of opinion as to the means to be employed. At any rate, it would be interesting to know what the profession, especially the out-patient surgeons, think of the idea.

I am, Sir, yours faithfully,

Shanklin, Isle of Wight, June 4th, 1910. PERCY GULLY.

MEASLES AND THE POST-OFFICE AUTHORITIES.

To the Editor of THE LANCET.

SIR,—In a letter on this subject which appears in your columns this week Dr. S. R. Collier alludes to our practice at the isolation hospital at Mortlake not quite accurately. We do *not* separate our patients with glass screens, and the reason why our nurses do not convey infection is because we take special care to prevent them doing so.

I am, Sir, yours faithfully,

Mortlake, S.W., June 4th, 1910. F. G. CROOKSHANK.

THE LUNACY FEES AND THE RESIDENT MEDICAL OFFICER.

To the Editor of THE LANCET.

SIR,—An advertisement in your issue of to-day from the Guardians of the Poor of the Parish of St. Giles, Camberwell, for the post of resident medical officer to their Constance-road workhouse, with a salary of £200 per annum, with extras, contains a rider to the effect that lunacy fees in excess of £60 per annum shall be repaid to the board. This appears to be a resort to exploiting the abilities of the medical officer *in posse* for the benefit of the board. I think on inquiry it will be found, if past custom still prevails, that the receipts from that source amount to three or four times the £60 mentioned. Such a condition needs some investigation, so I draw your attention to the matter.

I am, Sir, yours faithfully,

June 4th, 1910. M.B., C.M. EDIN.

THE CONGRESS OF THE ROYAL HUNGARIAN SURGICAL SOCIETY.

(FROM OUR BUDAPEST CORRESPONDENT.)

THE Congress of the Royal Hungarian Surgical Society has been held recently, and the meeting was well attended. The presidential address was delivered by Professor MAKARA, who said that the past year had been rendered notable by the meeting of the Sixteenth International Congress of Medicine, at which members of the Hungarian Surgical Society heard lectures of world-wide interest.

Professor HÜMÉR HÜLTL discussed the question of Early Operation in Intestinal Obstruction, and dealt exhaustively with the causes producing such obstruction. He mentioned the different varieties of ileus, and referred to its symptomatology. Through his personal experiences, and from an exhaustive study of the literature on the subject, he had come to the conclusion that in mechanical obstruction surgical treatment was the only treatment of any value. In some rarer cases, where an accurate diagnosis could not be made, palliative internal treatment might be adopted for a period of not longer than 24 hours. The method of operation

depended on the anatomical conditions, but the best results might be expected from early surgical intervention.

Dr. COLOMAN MARTINY was of opinion that even in doubtful cases of ileus operative interference should be resorted to, since even a few hours' delay might work irreparable mischief. He proved from statistics that the number of cures recorded in the surgical treatment of this condition was increasing.

Cases of ileus were exhibited by Professor HÜLTL, Professor POLYA, Professor TAUFFER, and Professor HERCSEL.

Dr. CHUDOVSKY exhibited two patients. One had suffered from fracture of the vertebral column, the other had had a fibroma growing on the dura mater. Both had entirely recovered after operation.

Dr. GENERSICH exhibited a patient who had been stabbed, the knife perforating the pericardium and thence penetrating into the abdominal cavity through the diaphragm. The patient's wound had completely healed.

Dr. GERGÖ and Dr. BORSZEKY read papers on Serum Therapeutics.

Dr. LANG read a paper on the Use of Hedonal as a General Anæsthetic. He employed this drug in the clinic of Professor Dollinger. Hedonal was administered by intravenous injections and the results of the method were encouraging.

Professor DOLLINGER spoke on the Surgical Treatment of the Neuralgias of the Trigeminal Nerve. He had been an advocate of extirpation of the Gasserian ganglion, but now preferred treatment by means of injections of alcohol. He had performed this operation in 14 cases with the best possible results.

The method of treating fractures received much attention at the Congress. The first address on this subject was delivered by Dr. HOLZWARTH, who emphasised the importance of diagnosis by means of X rays. He said that in Hungary the best results were arrived at by means of the Dollinger method, which consisted of the application of light plaster dressings. He laid stress on the necessity of freeing the broken limb from the weight of the body.

Dr. TANDOR was of the opinion that proper extension was the most important factor in the treatment of fractures.

BRISTOL.

(FROM OUR OWN CORRESPONDENT.)

The University of Bristol Colston Society.

THE accounts relating to the eleventh annual dinner of the Colston Society held in February last have just been published. The sum subscribed during the year amounted to £478 10*s.* 6*d.*, making the total raised by the society since its foundation £5736. Sir Isambard Owen has consented to accept the presidency for next year. The officers of the society are arranging for an interview with the committees of the Dolphin, Anchor, and Grateful Societies (benevolent societies meeting annually on Colston Day) with a view of enlisting their coöperation in the joint establishment of a Colston Chair of Commerce at the University of Bristol.

The Court of the University of Bristol.

The Right Hon. Lewis Fry, presiding over the second court meeting of the University of Bristol, which sat recently, alluded to the death of His Majesty King Edward VII. and to the encouragement he had given to the foundation of the University. He moved that the seal of the University be affixed to two addresses, one to His Majesty King George V. and the other to Her Majesty the Queen-Mother. This resolution was seconded by the Sheriff and carried unanimously. Various appointments were made and ratified and a large number of ordinances were adopted on the recommendation of the Council and Senate.

The University of Bristol and Athletics.

The athletic side of the new University is not being neglected. At a recent meeting of the University Athletic Club several contests with the University of Birmingham were held, completing a series begun at Birmingham. Of the seven events competed for Bristol won three. During the winter Birmingham beat Bristol at Association football and at hockey, the Rugby match ending in a draw.

Bristol Deaf and Dumb Institution.

The final scheme for the administration of the foundation of the Bristol Institution for the Deaf and Dumb has been drawn up. Its provisions will empower the trustees to apply a certain portion of the income for the benefit of deaf and dumb persons living in Bristol and its neighbourhood by payments towards the provision and equipment of classes and lectures; by assisting deaf and dumb persons over 16 years of age who have attended this or any other certified school for the education of the deaf and dumb to continue their education by learning skilled trades; and by the award of exhibitions.

Presentation to Dr. James Fletcher.

Dr. James Fletcher, who has for nine years been superintendent of the City of Bristol Fever Hospital at Ham Green, is leaving to take up similar duties at the Monsall Fever Hospital, Manchester. He was entertained by the staff of the Bristol health department, from whom he received a present of a silver rose-bowl suitably inscribed. The medical officer of health, Dr. D. S. Davies, in making the presentation, spoke of Dr. Fletcher's departure as a real loss to the city as well as a personal loss to his Bristol friends.

St. Mary's Hospital: Dinner for Past Students in Bristol.

On May 26th 18 St. Mary's Hospital men, past and present, resident in the West of England, met to dine at St. Stephen's Restaurant, Bristol. Mr. Herbert W. Page was in the chair, and the present staff was represented by Mr. V. Warren Low and Dr. Reginald Miller. The occasion was a very pleasant one and it is hoped that it may be repeated. Similar dinners have been held by St. Mary's men at Derby and at Leicester.

Medical Golf.

The recently formed Bristol and District Medical Golfing Society have played its first match at Long Ashton against the Association of Bath Medical Practitioners. The Bristol players won by 7 points to 2½.

Dentistry for School Children.

The Education Committee of the Somerset county council has made an arrangement with several dental surgeons in the county whereby their services may be obtained for the school children. The school managers are to give facilities for dentists to attend on children whose teeth have been found defective on medical examination. It is suggested that the expenses shall be met by requiring the parents to pay from 1*s.* to 2*s.* 6*d.* per child, according to the amount of treatment required, and that when the relatives are too poor to pay local charities or private benevolence should be relied upon.

The Exeter Workhouse.

The Association of Poor-law Unions recently suggested that the workhouses of this country should on certain occasions be thrown open to the general public for inspection. The Exeter board of guardians, therefore, recently invited the residents of that city to inspect the workhouse and new infirmary. The Mayor, the Sheriff, and many members of the corporation and clergymen accepted the invitation, and were satisfied with the arrangements made and the accommodation provided.

Pediculosis in Devonshire.

At Paignton on June 3rd the parents of 17 families were summoned by the Devon County Education Committee on account of the irregular attendance of their children at school. The parents neglected to keep the children free from pediculi, although definite instructions had been given with regard to the necessary treatment, and a period of five weeks' absence had been allowed for the carrying out of this treatment. It was stated that 80 per cent. of the girls attending the Paignton school had pediculosis. The magistrates fined each parent 2*s.* 6*d.*—At Brixham on May 27th several fines of 2*s.* 6*d.* were imposed for similar offences, the chairman of the magistrates (Lord Churston) remarking that in the future the relatives would not be let off so easily.

June 7th.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.—The prizes will be distributed to the students by Sir Alfred Keogh, K.C.B., in the Governors' Hall on Thursday, June 23rd, at 3 P.M.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Medical Benevolent Society.

THE annual meeting of this society was held last week. The President, Sir Thomas Chavasse, moved a resolution expressing sorrow at the death of King Edward VII. and sympathy with His Majesty King George V. and the Royal Family. The report of the directors stated that the invested funds amounted to £16,090. The sum of £150 was invested during the year. During the past year 25 annuitants had received help, the annual value of the grants varying from £36 to £18. The total sum expended on grants and donations was £734. The income during the year was £833 and the expenditure £786, leaving a favourable balance of £47. The total number of benefit members was 391. Attention was drawn to the very large number of practitioners in the neighbourhood who had not joined, and members were urged to interest others in the work of the society. Dr. R. W. Simon was appointed president for the ensuing year; Mr. W. F. Haslam, president-elect; and Dr. A. V. Bernays and Mr. Jordan Lloyd, vice-presidents. The following were re-elected: Mr. F. Marsh and Mr. Haslam, treasurers; Mr. F. Crowder, honorary solicitor; Dr. T. Stacey Wilson, honorary auditor; and Dr. J. E. H. Sawyer, honorary secretary.

Memorial to King Edward VII.

There has been much discussion in the city upon the form which a memorial to his late Majesty should take. The *Birmingham Daily Mail* has inaugurated a fund with the object of establishing a two-fold memorial: (1) a statue to be placed in some prominent place, such as Victoria-square; and (2) the rebuilding of the Children's Hospital, for which funds are urgently required. Probably a King Edward VII. ward will be founded.

Health of Coventry.

Dr. E. H. Snell, in his annual report as medical officer of health of Coventry, says that although the death-rate last year did not quite reach the record established in the two previous years, it was remarkably low, being only 13·7, and the infantile mortality was only 96. He remarks that "it is a reasonable source of gratification that a manufacturing town such as this should attain rates such as these, rates which would not discredit a health resort, and in fact by many of them is not attained." On an estimated population of 93,500 the birth-rate was 27·8, the average for the previous ten years being 28·9. The zymotic death-rate was 1·6. In a return giving deaths from phthisis it is shown that 13 of the persons were machinists, 21 housewives, and 17 of no occupation; only 6 of the 96 fatal cases were found in houses rented at £20 or over. For some years Dr. Snell has had in mind the desirability of instituting a register of all houses in the city recording their sanitary state; the only hindrance hitherto has been the absence of an adequate staff.

June 7th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Liverpool School of Tropical Medicine.

THE expedition of medical men, of which Professor Sir Rubert Boyce is the head, organised for the purpose of dealing with the outbreak of yellow fever in Sekondi and Freetown, sailed on June 1st from Liverpool in the African Steamship Company's steamer *Dakar*. On first hearing of the outbreak Sir Rubert Boyce offered to place his services immediately at the Earl of Crewe's disposal in order to organise measures for the stamping out of the disease. From the latest reports received from the colonies concerned it appears that 12 cases of yellow fever had occurred, 9 in Sekondi, and 3 in Freetown. Sailing with Sir Rubert Boyce to Sekondi were Mr. R. Mugliston, Dr. D. Duff, Dr. S. Goodbrand, Dr. M. W. Fraser, Dr. D. T. H. Croby, and Dr. G. E. Moffatt. Dr. W. A. Nicholson and Dr. J. U. Wood proceeded by the same steamer to Freetown, Sierra Leone, to assist in combating the outbreak there.—Dr. Wolferstan Thomas, assistant lecturer in the Liverpool School of Tropical Medicine, has been appointed to the directorship of the new laboratories at Manaos, in the State of Amazonas. These new laboratories are supported entirely by the foreign business firms in Manaos. This is the second institute that has chosen a student of the Liverpool School of Tropical Medicine as its director.

Liverpool Stanley Hospital.

On May 26th there was a meeting of the trustees for the purpose of electing an honorary surgeon to the Stanley Hospital, in succession to Mr. Douglas Douglas-Crawford, who was recently appointed honorary surgeon to the Royal Southern Hospital. There were five candidates. Mr. Arthur J. Evans, formerly attached to the chief field hospital in South Africa during the late war, was elected by a large majority. Mr. Evans also distinguished himself at the time of the great Jamaican earthquake, accomplishing invaluable work on the steamship *Port Kingston*.

Tuberculosis Exhibition in Liverpool.

An interesting exhibition will be held in Liverpool from June 15th to the 25th. The undertaking, which will be under the auspices of the Liverpool health committee, is the outcome of the Countess of Aberdeen's crusade against tuberculosis in Ireland. Charts, diagrams, models of healthy bedrooms, illustrations of effective ventilation, &c., will be shown, a number of these appliances being contributed by the Liverpool health department. The exhibition will be held in St. Martin's Hall, which is situated in a densely populated district. The object of the exhibition is to spread the knowledge of the principles of sanitation among the poor. The Lord Mayor has promised to preside at the opening lecture. Admission to the exhibition and the lectures will be free.

The West Derby Guardians and Accommodation for Chronic Aged Invalids.

The West Derby guardians are moving forward on lines recommended by the Poor-law Commissioners. They have accepted a tender for £103,497 for the erection of a hospital at Alderhey, West Derby, for the accommodation of chronic invalids, principally old people. When the new building is completed, 1000 of such cases will be transferred thereto from the Walton Workhouse, and the board's scheme of classification will thereby be greatly advanced.

The Care of Epileptics: Cheshire Guardians' Conference.

Representatives of seven of the 14 unions in Cheshire gathered at a conference in the Wirral guardians' offices at Birkenhead on May 26th to consider the question of making better provision for the classification of feeble-minded and epileptic cases. The chair was taken by Mr. G. Andrew, the chairman of the Stockport guardians, who said that the question which had brought them together was one of the most important that guardians had to deal with. In his own union such cases were not kept in the workhouse; they were boarded out at a cost of 14*s.* a week each. The importance of coöperation in dealing with the problem was urged and of providing homes in a central part or various parts of Cheshire. The value of proper treatment for these cases in special homes was emphasised. The following resolution was agreed to:—

That the representatives of the boards of guardians present at this meeting agree to coöperate in forming separate homes for epileptics, but do not bind their several boards to any future action until agreed upon by the said boards.

The conference was adjourned. The next meeting will take place at Crewe, at a date not yet fixed, and in the meantime the unions of Cheshire will be circularised and informed of what has taken place, and requesting their coöperation.

June 7th.

WALES.

(FROM OUR OWN CORRESPONDENT.)

A Fund to Assist the Daughters of Medical Men.

Miss Cecile James, who died on April 4th last at the age of 81, left estate valued at nearly £13,000. She bequeathed various annuities to certain relatives and gave instructions in her will that on the death of the survivor the residue of her estate should be allowed to accumulate for 20 years, on the expiration of which period a trust should be founded to

be known as the "Job" fund in memory of her father, Job James, who was formerly a medical practitioner in Merthyr Tydvil. She further desired that grants of sums varying from £20 to £40 should be made from time to time from the accumulated fund to the daughters of medical men to enable them to learn to earn their own living or to assist them if in ill-health.

The Medical Treatment of School Children in Barry.

In an appendix to his second annual report to the Barry education committee Mr. W. Lloyd Edwards, the school medical officer, places before that authority a scheme for the treatment of those children found on medical examination to be defective. He points out that this examination reveals two types of ailments which require treatment. The first includes errors of refraction, the presence of adenoids or enlarged tonsils, and dental defects, while the second includes ailments requiring ordinary medical treatment. He suggests that for the first class of cases special medical men should be appointed who would be paid at the rate of £50 per annum for an attendance of one afternoon weekly, and that the total sum necessary, which he estimates at from £350 to £400 per annum, should be raised by contributions of 1*d.* a month from the parents of the 7000 or 8000 children in attendance at the schools. Where the parents could not afford to pay he proposes that the amount should be paid by the education authority, and that the board of guardians should pay for the 350 children under its care. To deal with the second class of cases he suggests the formation of a school medical service, on the staff of which all the medical practitioners in the town should be invited to serve. They would receive in payment for their services the sum of 3*s.* per annum for each child, contributed by the parents of those children who were included in the scheme. At the beginning of each year the parents would have the choice of the medical man to attend upon their children. The expenses of administration both of the clinic and of the school medical service it is proposed should be defrayed by the education authority.

Newport School for Mothers.

For several years past the medical officer of health of the county borough of Newport, Dr. J. Howard-Jones, has drawn attention in his annual reports to the waste of infant life in the borough, which he considered was largely due to the ignorance and want of appreciation of the importance of domestic hygiene on the part of mothers. In 1908 the infantile mortality-rate in the whole town was 135 per 1000 births, a considerable decrease on the rate recorded in some previous years, for in 1899 it was as high as 188 per 1000. In 1908 the rate varied very considerably in different parts of the borough, in one portion being as low as 95 per 1000 and in another as high as 200 per 1000. These figures all point to the need for some systematised instruction of mothers on the lines indicated by Dr. Howard-Jones. Such instruction and other suitable assistance have been made possible through the establishment of an Infantile Health Central Committee which has recently issued its first annual report. The work of the committee is being carried out very much on the lines of the St. Pancras School for mothers. Milk is supplied to necessitous mothers and expectant mothers, to the former only on the distinct understanding that she suckles her child. Twice a week mothers are invited to the centre where the health visitor talks to them on matters of hygiene, feeding, clothing, and the general care of babies. At other times a class is held for instruction in the cutting out of clothes. Although so recently established and conducted on modest lines there is already evidence of good resulting from the efforts of the committee.

Appointment of Medical Officer of Health for Merionethshire.

Merioneth county council has decided to appoint a medical officer of health for the county, his duties to include the medical inspection of school children, at a salary of £450 per annum, including travelling expenses, a knowledge of Welsh being necessary.

June 7th.

THE degree of Master of Laws in the University of Cambridge has been conferred upon Mr. D. Cotes-Preedy, M.A., L.S.A., Barrister-at-Law, honorary secretary of the Medico-Legal Society, and late house physician at St. George's Hospital, for a dissertation entitled "The Legal Relations of Hospital Authorities, their Staff and Patients."

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Sir Hector Cameron's Resignation.

IT is with great regret that we learn that Sir Hector C. Cameron has presented a petition to the Court of the University of Glasgow for leave to resign from the chair of Clinical Surgery. Sir Hector Cameron, who has long been recognised as one of the leading Scottish surgeons, was educated at St. Andrews, Edinburgh, and Glasgow Universities, and received his early training under Lord Lister in the Royal Infirmary, Glasgow, where he was house surgeon, while he also assisted Lord Lister in his private work. Subsequently he became surgeon to the Royal Infirmary and was engaged in that capacity from 1874 to 1881, when he was appointed to a similar post in the Western Infirmary. It was during his presidency of that body that the Faculty of Physicians and Surgeons of Glasgow celebrated its tercentenary, and ten years ago Queen Victoria conferred upon him the honour of knighthood.

A New Medical Novelist.

A work of fiction, entitled "My Lady of Aros," has recently appeared from the pen of a writer who has assumed for literary purposes the name of John Brandam. The book will appeal to your readers when they know that the author is a medical man who practised for some years in the island of Mull—otherwise Aros—where the scene of the story is laid, and was formerly a distinguished student of St Mungo's College, Glasgow, a "John Reid" prizeman, and a resident physician and surgeon at the Royal Infirmary, Glasgow. In moments of leisure from his widely-scattered practice he has written a book, and, a Celt himself, in his professional work he has found an opportunity of dissecting and understanding the aspirations and ideals of the Celtic nature.

Transfer of Sidlaw Sanatorium.

As Monday, May 30th, was the last day upon which objections to the Bill for the transfer of the Sidlaw Sanatorium to the directors of the Dundee Royal Infirmary could be lodged, and as no objections have been lodged, the passage of the Provisional Order is secure, although it will probably be August before the Order is passed.

June 7th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Irish Medical Association.

THE annual meeting of the Irish Medical Association was held last Tuesday at the Royal College of Surgeons, Dublin, Sir Thomas Myles, the President, being in the chair. The report of the Council stated the membership as 629, being a decrease of 63 from that of the previous year. The Council notes its failure to obtain any better terms from the Treasury in payment for the weekly returns made by registrars of deaths of persons over 70 in connexion with the working of the Old Age Pensions Act. The Council failed also to secure coöperation between veterinary surgeons and medical officers of health in the carrying out of their duties under the "Dairies and Cowsheds Order" of the Local Government Board. The Council endeavoured to obtain some concession from the colleges and hospitals by way of reduction in fees for the children of medical men preparing to follow their fathers' profession. Sympathetic replies were received from the Royal College of Surgeons and Trinity College, Dublin, and the Council is hopeful of being ultimately successful. The Council endeavoured to induce the Local Government Board to place Poor-law medical officers, when subpœnaed to attend a court of law in private cases, in the same position as if they were Crown witnesses. While it has not been successful, at the same time it is pleased to state that in one case brought under the notice of the Local Government Board by the Association the Board recommended the board of guardians to pay the substitute. The income received, with the balance in hand at the close of last account, amounted to £967 0*s.* 4*d.* and the payments to £542 16*s.* 9*d.*, leaving a balance of £424 3*s.* 7*d.* In the journal account receipts amounted to £30 12*s.* 3*d.* and the

expenditure to £199 0*s.* 3*d.*, showing a net cost to the Association, £168 8*s.* 0*d.* The arrears account at the end of 1909 stood as follows: 69 members owed two years' subscription, 94 owed for one year, and 2 owed 10*s.* 6*d.*, making a total of £244 13*s.* 0*d.* The balance-sheet showed assets £729 16*s.* 7*d.* and liabilities £7 8*s.* 10*d.*, leaving a surplus of £722 7*s.* 9*d.* Mr. O'C. Delahoyde has become honorary treasurer of the Association in room of Sir William J. Thompson, who resigned upon his appointment as Registrar-General. It was announced at the meeting that a plebiscite of the members had recently been taken on the question of a national medical service. 295 expressed themselves in favour of a national service and 46 against.

The Royal College of Surgeons in Ireland: Election of Officers.

The following are the results of the annual elections which took place at the last meeting of the Royal College of Surgeons:—President: Robert H. Woods. Vice-President: Richard D. Purefoy. Honorary secretary: Sir Charles A. Cameron, C.B. Council: Sir Henry R. Swanzy, William Stoker, Sir Charles Alexander Cameron, C.B., John B. Story, Sir Charles B. Ball, Sir Thomas Myles, John Lentaigne, Sir Arthur Chance, Sir Lambert H. Ormsby, Henry G. Sherlock, R. Bolton M'Causland, F. Conway Dwyer, R. Lane Joynt, William Taylor, Edward H. Taylor, R. Charles B. Maunsell, William Ireland Wheeler, D. Edgar Flinn, and Thomas E. Gordon. There was no contest for any of the offices, as the other gentlemen who had intended to stand for the vice-presidency withdrew their candidature. There is no change on the Council except that Mr. Conway Dwyer succeeds to the place from which Mr. G. Jameson Johnston retired on his election as an examiner. Mr. Dwyer is surgeon to the Meath Hospital and professer of surgery in the College school. Previous to the election there were many rumours of probable changes, as the "progressive" policy of part of the Council in relation to the school had roused some opposition. As will be seen, this opposition was not strong enough to dislodge any members of Council. Whether this is due to approval of their policy by the Fellows in general or to mere inertia cannot be stated.

The Royal College of Surgeons in Ireland: Report of the Council.

The annual report of the Council of the Royal College of Surgeons in Ireland, which has just been presented, states that during the year 27 candidates were admitted to the Fellowship; 73 candidates received the Conjoint Diplomas in Medicine, Surgery, and Midwifery, of the Royal Colleges of Physicians and Surgeons; 37 candidates received the Conjoint Diploma in Public Health of the Royal Colleges of Physicians and Surgeons; 10 candidates received the Licence in Dental Surgery. 81 candidates passed the Conjoint Preliminary Entrance Examination with the Royal College of Physicians. The obituary list shows that 12 Fellows and 51 Licentiates died during the year. There are at present living 12 Honorary Fellows, 486 Fellows, 2919 Licentiates, 6 Honorary Diplomates in Public Health, 334 Diplomates in Public Health, and 548 Licentiates in Dental Surgery. "During the past year," the report runs, "a large sum of money, amounting to nearly £1400, has been expended on the Anatomical Department, the most important department in every medical school. The old floor, saturated with disease germs, has been replaced by one more in accordance with modern ideas. A new system of ventilation has been installed, new tables of modern type have been supplied, the walls have been thoroughly cleansed and re-painted, the preparation room completely renovated, and large preserving tanks have been provided for the convenience of the anatomical class." Regret is expressed regarding the death of Professor A. Fraser, and it is announced that a Civil List pension of £70 a year has been granted to Mrs. Fraser. A branch of the Officers' Training Corps has been established in the College and the Council aided the students in the formation of a students' branch.

The Royal Medical Benevolent Fund Society of Ireland.

The annual meeting of this society has just been held. The report states that, including a balance of £758 16*s.* 2*d.* from the preceding year, the income of the society in the financial year ended on April 30th amounted to £2408 1*s.* 4*d.*, which was less than that of the preceding year by £206 10*s.* The difference is very nearly accounted for by the receipt last year from the Royal College of Surgeons of £202 18*s.* 7*d.*, accumulated interest of the Carmichael Prize Essay Fund. On the credit side of the account the disbursements amount to £1610 7*s.* 1*d.* Grants awarded to 86 applicants amounted to £1438 2*s.* 6*d.*, as compared with £1166 awarded to 83 applicants the preceding year. The average amount awarded for the last eight years was £1184. In only one year since the society was instituted did the grants awarded exceed those of the year now ended. In 1879–80 they amounted to £1445 7*s.* 6*d.* In that year £400 were granted to 12 medical men, as compared with £155 awarded to four medical men in the year now ended. The society is doing excellent work and deserves more hearty support.

The Antituberculosis Campaign in Ireland.

The Countess of Aberdeen, as the President of the Women's National Health Association of Ireland, has been able to make the announcement that there is a distinct reduction in the annual death-rate from Ireland's fell scourge, tuberculosis. The Registrar-General, Sir William J. Thompson, has placed in her Excellency's hands an advance copy of the statistics for 1909. According to these, the deaths from all forms of tubercular disease were 11,679 in 1907, 11,293 in 1908, and 10,594 in 1909—last year—thus showing a decrease of 699. That was a total decrease of over 1000 in two years. The death-rate per 1000 was 2·7 in 1907, 2·6 in 1908, and 2·4 in 1909. To put it in another form: in 1907 there were on the average 32 deaths in Ireland every day from tuberculosis, while in 1909 the daily average was 29 deaths, which meant that at present there were about three deaths a day less in Ireland than two years ago. Again, the death-rate, 2·4, was the lowest that had been reported for 35 years. In announcing these most gratifying results at a meeting of the Women's National Health Association held in Dublin on June 6th, Lady Aberdeen explained that the association did not mean to claim all the credit for the reduction in the death-rate, but they thought that they had something to do with it. They wanted, she said, to make this the occasion of an appeal to all such associations, and especially to the members of their own association, who should be encouraged to press forward to even greater efforts. She also announced that a French medical society had awarded a medal to the Women's National Health Association.

Extension of the Midwives Act to Ireland.

At the annual meeting of the Ulster branch of the British Medical Association, held in the Medical Institute, Belfast, on June 2nd, the President, Dr. T. H. Moorhead, being in the chair, on the motion of Sir John Byers, seconded by Mr. R. J. Johnstone, a resolution was passed unanimously approving of the extension of the Midwives Act of 1902, as amended, to Ireland.

Proposed Increased Hospital Accommodation in Belfast.

Under the auspices of the Lord Mayor and Lady Mayoress of Belfast, the former of whom presided, a meeting was held in the City Hall, Belfast, on June 6th to initiate a movement to complete the fund for the rebuilding the Ulster Hospital for Children and Women. From £10,000 to £12,000 will be required to erect and equip the new building, and the board of management has decided not to lay a single brick before the whole of that amount has been secured. Already considerably over £7000 have been paid or promised, and it is in order to raise the remainder that this meeting was held. Admirable speeches were delivered, especially on the medical side by Dr. A. B. Mitchell, who is surgeon to the institution, and a strong committee of ladies was appointed to collect the necessary money required.—It has been suggested that as a memorial to King Edward VII. a sum of money should be raised sufficient to open the two wards in the Royal Victoria Hospital, which owing to want of funds are still closed.

Bangor (County Down) Cottage Hospital.

At the annual general meeting of the supporters of this hospital held recently, it was reported that the new hospital would cost about £3400, without providing for laying out of the grounds. It will be finished in about three months time. A sum of £2379 has been paid in aid of the building, while £300 were promised, leaving a balance of £700 needed, for which the committee makes an urgent appeal.

June 7th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Disorderly Scenes at the "Concours pour l'Agrégation."

THE examination known as the *Concours pour l'Agrégation*, which was held recently at the Paris Faculty of Medicine, has been the occasion of a remarkable series of disturbances. Previous letters in this column have shown that in medical circles there is much hostility to this examination. In particular the Congress of Practitioners has several times voted in favour of suppressing it, and at the last meeting of this congress two months ago the members resolved to use every endeavour to prevent the holding of the present examination. The results of these competitions are said to depend entirely on personal interest, the examiners giving preference to their favourite pupils. The system of *professeurs agrégés* selected by competitions of this kind has also been energetically attacked on the ground that the successful candidates are young men owing their positions to favouritism, that the instruction which they give is entirely theoretical and useless, and that it would be preferable to have the requisite instruction given at hospitals by all medical men who might consider themselves capable of acting as teachers. The competition which ought to have taken place two years ago gave rise to such disturbances that the Minister had to close the proceedings, and as a measure of pacification promised that an inquiry should be held by a commission consisting of one half professors and one half practitioners. This commission has never been appointed and the malcontents now avail themselves of this breach of faith as a reason for attacking the present *concours* more violently than ever. A meeting has been held to draw up a list of candidates, and the law requires this, like all the other work of the *concours*, to be done in public. One of the first manœuvres of the hostile faction consisted in an unheard-of number of candidates giving in their names, for all doctors of medicine are legally eligible. Crowded together in the ampitheatre where the list was being drawn up in presence of the jury, they set up such a noise that the dean, who was president of the jury, could not make himself heard, and in order to communicate with the meeting had to write on the blackboard what he intended to say. At the same time fruit and eggs were thrown by the audience at the jury, who endured this onslaught with stoic fortitude, disregarding the yellow splashes which the eggs had made on their handsome robes of cerise silk. After two hours of uproar the list of candidates was completed and the proceedings terminated. The meeting on the following day was particularly stormy. Numerous police officers were in attendance and the process of drawing lots went on for two hours amid shouting. An egg being now thrown the officers rushed into the part of the amphitheatre from which it had come and without discrimination arrested six persons, almost all of whom were manifestly innocent. The president then had to declare the proceedings closed on account of the commotion. The Association of Medical Students, which up to the present time has remained neutral, has now resolved to take action for the purpose of entering a protest against the conduct of the police.

June 6th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

King Victor Emanuel at Messina.

"SURPRISE visits" have enabled the King of Italy to detect the culpable supineness (or worse) of the local authorities in the earthquake-damaged districts of Calabria. But official visits like that just paid by His Majesty and Queen Elena to Messina seem not less fruitful in disclosing the negligence of those charged with the rehabilitation of the town. Not only were the Royal pair disappointed with the reconstructive operations, still lagging wofully behind, but they were simply shocked at the insanitary conditions prevailing—prevailing, moreover, of all places in the world, in the hospital itself! The Senator Signor Todaro, for many years the able professor of anatomy in the Roman school, had the unpleasant duty of conducting the King over the Ospedale Civile, while sharing His Majesty's dismay at the filth and general slovenliness into which the wards and the operating theatre had been allowed to lapse. "Tell me," said the King to the Senator, "hygienist as you are, if it is possible to perform a surgical operation in this *luridume* (revolting dirt)." "I have just been drawing the Queen's attention to it," replied the Senator, ruefully; whereupon His Majesty, turning to the heads of the hospital administration, asked indignantly: "Are there no longer soap and water in the world? Excuse my frankness, but these poor patients, it would seem, have only Providence to rely upon!" Such is the return vouchsafed by officialdom in Messina to the generous largess of a sympathising world!

The "Bitter Cry" of the Communal Practitioner.

The debate still in progress on the "Bilancia dell Interno" (Budget of the Home Office) elicited some facts that were encouraging, but many more that were disquieting in the conditions under which the "medico condotto" lives and labours. Working in terms of the "Codice Sanitario" prepared by Bertani, the able Garibaldian surgeon, and reduced to practice by Crispi in 1882, the communal practitioner has succeeded in lowering the death-rate in the rural districts considerably, but with the increasing complexity of his task and the multiplying causes of friction between him and the "authorities," his lot, becoming daily harder, is now well-nigh intolerable. His spokesman in the Chamber of Deputies was Professor Angelo Celli, who described in trenchant language the difficulties and impediments the "medico condotto" has to struggle with, thanks to a bureaucratic system which seems expressly contrived to thwart individual effort. Under that system there is a fatal want of laboratories organised for sanitary surveillance, of isolation huts or houses, of the means of disinfection on up-to-date lines; while alcoholism, continued the orator, with its disastrous sequelæ, is actually promoted by the new law of "Sunday repose" and the opening of the public-houses. Nothing, moreover, is being done against tuberculosis; while as to pellagra, the means of combating it are vitiated by adherence to a theory of its cause which has collapsed before twentieth century research. The conditions under which the "medico condotto" has hitherto served are now impossible, contended Professor Celli, and what is the result? "The profession is ceasing to be attractive; the number of medical students in the universities is declining; the schools of pharmacy and veterinary surgery are deserted; and all this (and more) because nothing is being done for the 'classe sanitaria' (the practitioner class)." Professor Celli may have erred on the side of "special pleading," but his speech has made a profound impression not on the Chamber only. As reported in the press, it will have an effect on the constituencies which must make the rehabilitation of the "servizio sanitario" and of the "classe sanitaria" a *conditio sine quâ non* of any candidate's winning a seat in Parliament.

Italy's Tribute to Robert Koch.

Not only in the Chamber of Deputies has honourable reference been made to the career, as universally beneficial as it was academically and clinically brilliant, of the great German bacteriologist, but all through Italy, particularly in the centres of nature study and medical training, has that reference found a sympathetic echo. Italians, in truth, are deeply sensible of what the exact sciences, and, above all, those on which the practice of medicine is based, owe to the foreigners—German, Dutch, French, and British. Moleschott, migrating from his native Holland to Zürich, and thence brought by the great Cavour to Turin, initiated a salutary revolution in the teaching and the study of physiology through Italy, many of her most accomplished and effective occupants of physiological chairs having been his pupils. Dr. Boll, who died all too young, was another life-giving importation into Rome from beyond the Alps; while the sculptured presence of Lister on the façade of the surgical pavilion of the polyclinic attests the national homage to the English pioneer. And now Robert Koch is the theme of the most ardent eulogy—pupil after pupil at present employed in Italian laboratories coming forward to declare the debt they owe to him. This "fraternising" spirit is of happy augury,

not only in science, but (let us hope) in other international relations—even that of gradual disarmament and eventual peace!

June 2nd.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

A Unique Obstetrical Event.

FOR some time past considerable interest has been felt in medical and other circles on account of the news that one of the well-known "Siamese" twin sisters had given birth to a child. The twins were born in Prague and are now 36 years old. They have been exhibited all over the world, and it seems that during these travelling tours one of them fell in love with their manager; her twin sister, however, pretends that she knows nothing at all of the circumstances. A few weeks ago they had to see a surgeon in Prague on account of supposed colicky pains in the abdomen of one of them, who had been operated upon several years ago for cholelithiasis. The sisters and their father thought that a recurrence had taken place, but the surgeon diagnosed advanced pregnancy, or rather an incipient labour. The possibility of such an event being flatly denied by the sisters, a consultation with a leading obstetrician was arranged, but before his arrival the matter was cleared up by the woman being delivered of a healthy male infant. A few days ago the twins were examined and shown by Professor Schauta before the students at his clinic in Vienna. They are healthy looking, normally developed individuals, but are united to each other in such a way that their os sacrum is common to both. Each vertebral column of the twins is twisted through an angle of about 45° along a vertical axis when they are standing upright. They have only one anus, one clitoris, and one vagina, into which two uterine canals open. It is not possible to determine exactly the condition of the internal organs. The metabolism of each woman is completely independent of that in the other. Thus, for instance, whilst the mother and her twin sister felt the pain of labour alike, the mother showed a temperature of 38° C. on the second day, whilst her companion had a normal temperature. On the other hand, both women have milk in their breasts. Hunger and thirst are independent in the two; sexual impulse and the desire for micturition are always much stronger in the one who has become a mother than in her sister. Professor Schauta said that this was the first instance of one of a pair of conjoined twins having given birth to a healthy infant. As regards the anatomical location of the organs common to both sisters, there are no openings between the thighs of each individual of the pair, but the anus, rectum, and vagina (the two latter being well separated from each other) are situated between the two women as it were. There are two orifices of the urethræ leading through separate canals into separate bladders. The labour was normal and easy, the child being small and born at full time. The examination will be continued, and also observations of metabolism and mental conditions have been arranged for, so that the scientific investigation will be complete in due time.

The Vienna General Polyclinic.

The Vienna General Polyclinic has just issued its report for the year 1909, and some of the particulars are worth mentioning. The institution is one of the few of its kind in Austria which are supported by voluntary contributions and has been in existence for 30 years. The medical staff consists of 14 professors, with 4 house physicians and 60 other medical men in the various out-patient departments. The number of beds is 150, including 30 cots for children. The hospital possesses all arrangements for treating all diseases; a well-equipped electrical department with an X ray outfit and a stock of radium has been added recently. In connexion with the surgical department there is a gymnastic hall for children. The number of out-patients during 1909 was 77,000, being 5000 more than during the previous year, whilst 3011 in-patients were received in the wards; 834 children of various ages up to 14 years were admitted into the children's department. The mortality was 10 per cent. Over 17,000 minor operations were performed in the in-patient and out-patient wards, and over 1500 major operations, with a mortality of 6 per cent., were reported. In spite of the most careful economy there was a financial deficit of over £2000, a result which is made more remarkable by the fact that all the appointments, except those of the two resident assistants, are purely honorary. The hours of attendance in the out-patient department are from 8 A.M. till 8 P.M., and numerous classes are held in which both German and English are spoken, so that the clinical material is sufficiently utilised. Some of the staff are celebrities in their respective branches, such as Dr. von Frisch in urology, and Dr. Alexander in otology. Other well-known members of the staff were Professor Spiegler and Professor Monti, both of whom are now deceased, and formerly also Dr. Hochenegg and Dr. Basch.

Surgical Treatment of "Crises Gastriques."

At a recent meeting of the Medical Society of Vienna Dr. Moszkowitz and Dr. Gözl showed a man who had been suffering from frequent attacks of *crises gastriques* and had been brought to such a degree of despair that he was prepared to undergo any form of treatment which gave promise of relief. The two surgeons resolved to divide the posterior roots of certain spinal nerves. They selected the seventh, eighth, and ninth roots and divided the dorsal portions which contain the sympathetic fibres leading to the stomach. Since the operation the patient has lost his former distressing symptoms of incessant pain, vomiting, and mental depression. He has also gained weight, and the only outward symptom due to the operation is an anæsthetic zone around the abdomen. Further observations will evidently be necessary for forming a definite opinion as to the value of the operation.

June 6th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

A New Medical Centre.

THE munificence of a few St. Louis millionaires has rendered possible the accomplishment of a long-felt necessity. St. Louis is the geographical centre and natural metropolis of the middle west and south-west of the United States, and the recent gift of several millions of dollars to the medical department of Washington University in St. Louis will enable it to become a serious rival to Johns Hopkins. New buildings, to include a general hospital, an obstetric hospital, a children's hospital, with all the necessary laboratories and dispensaries, &c., are to be erected on an ideal site overlooking the beautiful Forest Park, on which the World's Fair of 1904 was held. First-class teachers are to be brought from wherever they can be obtained, and their time is to be wholly devoted to teaching and research. The appointments already made are those of Dr. George Dock, formerly of the University of Michigan, but at present of the Tulane University, New Orleans, to the chair of medicine; of Dr. John Howland, of University and Bellevue Hospital Medical College, New York, to that of pædiatrics; of Dr. Eugene L. Opie, from the Rockefeller Institute, to that of pathology; and of Dr. Joseph Erlanger, of the University of Wisconsin, to that of physiology. The new chairs of medical chemistry and preventive medicine, as well as the chairs of surgery and pharmacology, are awaiting appointments. There is to be an adequate corps of teaching assistants to these chairs. This development of Washington University Medical Department, added to the vastly increased facilities for clinical teaching in St. Louis, effected by the utilisation for clinical instruction of the vast material of the various municipal hospitals by a visiting staff to be created by the new Hospital Commission, will surely go far towards putting St. Louis in the foremost rank in the United States as a centre of medical instruction, both pre-graduate and post-graduate.

The National Conference of Charities and Correction.

At the present time St. Louis is the centre of observation in view of the great number of conventions that are meeting here in rapid succession. On June 6th the American Medical Association, with its subsidiary societies, holds its annual session here. This week is taken up with the Thirty-seventh National Conference of Charities and Correction, under the presidency of that remarkable woman, Miss Jane Addams of

Chicago. At the opening session on May 19th, in the presence of upwards of 2000 people, Governor Hadley of Missouri fired a gun at the pernicious and blighting system that prevails nearly all over the United States, in respect of the municipal eleemosynary institutions and sanitary governments. He promised to lay before the next meeting of the Legislature a Bill to place all these institutions under one board of men chosen solely on their scientific qualifications, instead of, as at present, each institution having its own board appointed on political partisan lines. It seems utterly ridiculous that the public health officials and those of the city hospitals should owe their positions to their political affiliations; yet such is the case in most cities, not St. Louis only. In her presidential address Miss Addams gave a masterly analysis of the motive forces underlying the social work of to-day. She divided the great body of social workers into those who work "for the love of the poor" and those who labour out of "hatred for injustice." "The negative policy," she said, "of relieving destitution, or even the more generous one of preventing it, is giving way to the positive idea of raising life to its highest value." She instanced the changes arising from the movement to control and eradicate tuberculosis as illustrating rapidly and graphically the social advance due to sanitary science, and cited the instance of a recent exhibition in Boston at which was shown an incandescent lamp that flickered into darkness twice a minute to indicate the rate of deaths from tuberculosis in the world, while, near by, the knife of a miniature guillotine fell every ten seconds to show the rate of industrial accidents in the United States. This, she said, illustrates "the wonderful methods of popular instruction which the destroyers of the white plague have evolved." Among the subjects receiving prominent attention at the conference are the present harmful system of treating insane wrong-doers as law-breakers and confining them in jails as prisoners when they should be in hospitals or asylums as patients; the bringing up of homeless children in institutions when they ought rather to be boarded out in homes; the crusade against tuberculosis; the development of the ideal city; the caisson worker and his diseases; rescue work among women; the payment of living salaries to widows to enable them to stay at home and bring up their children, a plan in actual operation by the Jewish charities; the sanitary condition of the "slums," of which the "Ghetto" in St. Louis is an awful example; and the "murder account" of factory work among women and children. The conference was preceded by one on backward and delinquent children.

May 25th.

THE Asylums Committee of the London County Council have received with much regret the resignation of Dr. David Johnston Jones, the medical superintendent of Banstead Asylum, after 30 years' service, 20 of which have been rendered at that asylum. Dr. Jones has been medical superintendent since Oct. 1st, 1901. The committee, in accepting Dr. Jones's resignation, say: "We gladly avail ourselves of this opportunity of recording our appreciation of Dr. Jones's faithful service and his sympathetic care of the patients."

DONATIONS AND BEQUESTS.—The late Mr. Alfred Shipley of Bristol has left by will £1500 to the Bristol General Hospital, £1000 to the Bristol University, £500 each to the Bristol Royal Infirmary, the Bristol Children's Hospital, and the Winsley Sanatorium, £200 to the Bristol Eye Hospital, and smaller sums to other charities. —By the will of Miss Harriet Sydney Hughes the testatrix left her residence, Bryn Menai, Bangor, to the Queen Victoria Jubilee Institute for Nurses as a house of rest or convalescent home for nurses, and a sum not exceeding £6000 for its upkeep; £500 to the Carnarvonshire and Anglesey Infirmary; and £300 to the Bangor District Nursing Association.—The Bristol General Hospital has benefited to the extent of £1000 under the will of the late Mrs. Markham Skerritt.—Among other charitable bequests, the late Mrs. Helen Crowther, of Rochdale, has left £4000 to the Rochdale District Nursing Association, £3000 to the Rochdale Infirmary, £1000 to the Pendlebury General Hospital, a similar amount to the Dispensary for Sick Children, and £500 to the Rochdale District Blind Society.

Obituary.

SIR FRANCIS SEYMOUR HADEN, F.R.C.S.

THE medical profession and the artistic world alike have lost a well-known figure by the death of Sir Francis Seymour Haden, which occurred on June 1st at Woodcote Park, Bramdean, Hampshire, his country seat. Widely famed as an artist, his medical career was distinguished, while his work as a sanitarian was also vigorous and valuable. Francis Seymour Haden was born on Sept. 16th, 1818, being the son of Dr. Thomas Haden, a graduate of the University of Edinburgh, who practised in Chelsea. He was educated at University College School and studied medicine first at University College, London, whence he went, as was at the period the recognised thing for the more ambitious young men to do, to the medical school of Grenoble and to the Sorbonne in Paris. He graduated in 1839 as M.D., while in France, and became a Member of the Royal College of Surgeons in 1842, 15 years later proceeding to the Fellowship. In Paris a hereditary taste for art—his grandfather was a painter—coupled with the fact that the value of drawing had been insisted upon in his educational courses, made him resolve to perfect himself as a draughtsman. He took lessons regularly at an art school while he was studying in Paris, and his appointment at the early age of 33 years to be honorary surgeon to the then Government Department of Science and Art still further confirmed his bias.

The first purely professional work which brought him into prominence was his report in connexion with that department upon the progress of modern surgery. This report was issued for the International Exhibition of 1862, at which exhibition a very remarkable display of surgical instruments of all sorts was given. A long and detailed account of the instruments at this exhibition was published in THE LANCET as a series of articles, and the descriptions supplied of the uses of the armamentarium of the day form an interesting and valuable commentary upon the position of surgery. Haden's official report upon the instruments, made for the international jury which had been convened to adjudicate upon the progress of surgical science during the decade 1852–62, went over the same ground in many places, but gave a really exhaustive history of operative surgery for these ten years, and was, besides other things, remarkable for its outspoken advocacy of ovariotomy. Among the most important indications of progress in surgery which he illustrated by reference to the instruments exhibited are revival of the excision of certain joints; the radical cure of reducible herniæ; new methods of external and internal urethrotomy; improved means of extracting foreign bodies from the bladder *per vias naturales;* the revival of median lithotomy by Allarton; improvements in lithotomy and ovariotomy; successful closure of recto- and vesico-vaginal fistulæ; the employment of metallic sutures; the division of vascular tissues without hæmorrhage by *écrasement linéaire;* improved methods of treating aneurysm, by compression, by flexion, and by coagulating injections; acupressure; subcutaneous injections; and the electric cautery. Thus it will be seen that he travelled over a wide field, and, being relieved from the necessity of explaining details of construction by referring to the articles in our columns, acknowledgment of which assistance is made freely, he was able to give his report a connected interest which made it both pleasant and highly instructive. "It may well be a source of pride and satisfaction to British surgeons," we said in reviewing this report, "to look through the list of improvements in surgery, to be able to reflect how large a portion of them, and especially how important a part, may be claimed as belonging to the work of the British school. The great progress in ovariotomy, lithotomy, the radical cure of rupture, and the treatment of aneurysm belongs to the British surgeons, not to speak of the multiplicity of practical improvements in each of the other departments." Haden showed his independence in dealing in an outright manner with one delicate point. He was compelled to face the question of the existing relations between surgeons and instrument makers. With honourable exceptions, it had largely been the tendency of the makers to claim for themselves the invention of instruments, of which the pregnant

idea had been suggested to them, and entrusted for elaboration to their mechanical skill; while many surgeons complained that the makers frequently suppressed, as far as possible, the names of those from whom they had derived their inspiration. It was a subject of remark, in connexion with the labours of the jury over whom Haden presided, that only rarely did the makers give to the jury any assistance or information on this head. Haden gave a list of scientific and other contributors to the exhibition who were not ostensible exhibitors, but whose inventions, exhibited by others, were alluded to in the report. Many inventors no doubt remained unnoticed, but he laboured hard to do justice to all. For this he deserved the thanks of all surgeons, his action putting a stop to an abuse that seems to us in this day of an incredible and foolish kind.

The operation of ovariotomy, as we have said, found an able supporter in Haden. Practitioners were at this time divided with respect to its value as a surgical proceeding, and Lister's discoveries had not made sufficient progress to be a commanding factor in the questions at issue. The tendency, on the one side, was to over-estimate the value of the operation, having regard to the results as yet obtained; on the other hand, it was unjustly depreciated by many leaders of medicine. What was wanted was a more clear description of those cases in which the operation could be safely practised, and not wholesale assertions as to the facility with which the proper cases for operation could be determined, nor general condemnations of the proceeding, with exaggerations of the difficulties of diagnosis, for these methods of treating the question had no other effect than to involve it in still further obscurity. It must be admitted by anyone who studies medical literature of the year 1862 that acquaintance with the nature of ovarian disease was not so complete as the advocates of ovariotomy asserted, even if no one was quite so ignorant respecting it as the opponents of that operation unhesitatingly contended at the meetings of the learned societies. The numerous discussions showed that whatever had hitherto been the success of ovariotomy in the hands of certain operators, the diagnosis of ovarian disease was by no means without its difficulties, nor the simple operation in its simplest form without its complications and dangers. The leaders of obstetric medicine, especially some of the veteran specialists, regarded the operation on the whole with a sharply critical eye, so that Haden's advocacy of the procedure was a bold line to take, and he took it with a spirit which proved him to be sincere to his convictions.

In 1867 Haden resigned his post under Government and devoted himself mainly to etching, though he had a good private practice; he also made frequent pronouncements upon one subject very dear to his heart as a sanitarian—viz., the reform of our methods of burial. He carried out an investigation into the conditions of many London graveyards, and came to the conclusion as a result that earth-to-earth burial was the only safe and decent mode of sepulture. Of cremation, which he considered wanton waste of material required by the soil, he was as declared an enemy as he was of the usual methods of earth burial. Thus he denounced brick vaults, lead shrouds, and even oak coffins as strongly as he denounced the funeral pyre; while he invented a perishable coffin composed of papier-mâché, designed to allow the corpse as quickly as possible to come into contact with the soil, his contention being that it was absurd to enclose bodies in hermetical coffins, so that neither the air nor the earth could gain access to them. Haden's assertion, made often and fiercely, was that the natural destination of all organised bodies is the earth—"Everything that has lived dies and everything that dies falls to the earth." The view has a good deal of force, although the evils which he described in his diatribes against burial usage were not always dependent on the methods of interment adopted. He was obviously without fear of premature burial as a danger that was even worth considering, for in addition to condemning the practice of using strong coffins and brick vaults for the reception of corpses, he condemned the lengthy period often permitted between a death and the succeeding burial. "Retention in dwelling houses after putrefaction has set in," he wrote in our columns, "necessitates the use of a strong coffin, which is the cause of all the evils." His views on the subject have on numerous occasions received notice in the columns of THE LANCET. The chief amongst the articles which he has contributed on the subject are: "Note on the Disposal of Dead Bodies,"[1] and "Remarks on Proper and Improper Burial, with an Examination of the Claims Made for Cremation."[2] He was also much interested in the foundation of the Hospital for Incurables. He advocated the movement vigorously and was a liberal donor to the funds in the early days of the movement, while he also signed a medical testimonial to the value of the institution for circulation to the public, among his co-signatories being Professor Sharpey, Sir William Fergusson, Sir Prescott Hewitt, and Sir Richard Quain. His name appears in the list with the quaint qualification of consulting surgeon to the Chapel Royal Fund.

As a medical man, Haden, able and very well informed as he was, took no high official or scientific place, but he made his mark. As a sanitarian he confined his researches and writings mainly to an advocacy of the reform of burial and a criticism of cremation, so that here again his scope was too limited to gain for him any lofty position despite his shrewd and vigorous powers of argument. But in the art world he was a commanding figure. He was a reformer and an organiser as well as a finished artist, and he has left his imprint for ever by his services to his own department of art—etching. It is not our business to attempt to place Sir Francis Seymour Haden in any category of etchers according to his merits, but he was recognised by connoisseurs and artists alike to be a remarkable executant, and many of his compositions have a beauty which demands for its appreciation neither technical knowledge nor critical faculty. Ability both to obtain the admiration of his craft and to win the appreciation of outsiders marks him as a leader. If he fell short in achievement of the excellence of his brother-in-law Whistler, he immeasurably surpassed the elaborate but mechanical performances of those who held the field before he appeared upon it. By founding the Painter-Etchers' Society he raised his art enormously in public esteem. Complete descriptive catalogues of his work have been published, and many of his plates have obtained high prices at sales.

It will be seen that Sir Francis Seymour Haden was a many-sided and distinguished man. He was not a prolific writer on professional subjects, although he dealt with widely diverse subjects. Amongst his writings in our columns may be mentioned, in addition to the others referred to, the following papers: "The Suppression of the Menses Treated by Leeches to the Os Uteri," "A Table to Promote Uniformity in the Registration of Cholera Cases," "Some Surgical Proceedings in the French Hospitals," and "Notes of the First Case of Algide Cholera Recorded in London in the Epidemic of 1848."

In the year 1847 Sir Francis Seymour Haden married Dasha Delano, daughter of Major Whistler, and half-sister to James McNeill Whistler. She predeceased him. He had one daughter and two sons, one of whom, Francis Seymour Haden, C.M.G., has held many high colonial appointments.

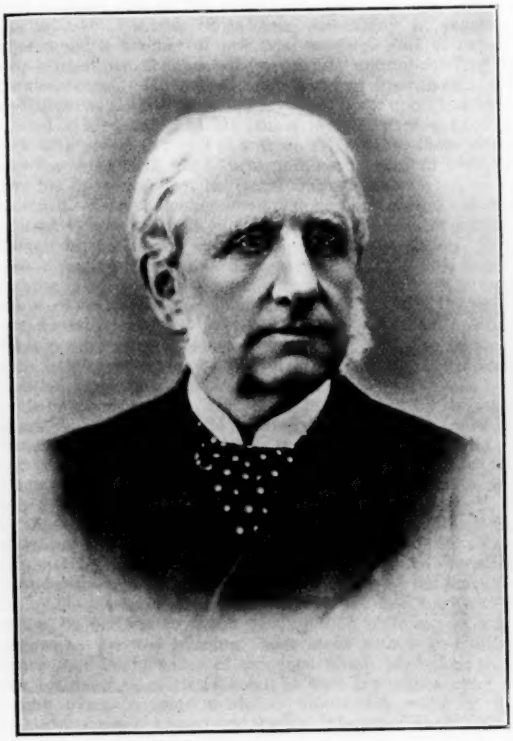
WILLIAM ROSE, M.B., B.S. LOND., F.R.C.S. ENG.,

EMERITUS PROFESSOR OF SURGERY IN KING'S COLLEGE AND CONSULTING SURGEON TO KING'S COLLEGE HOSPITAL, ETC.

William Rose, whose death occurred last week in the sixty-third year of his age, was born on July 18th, 1847, at High Wycombe and educated at King's College, London, entering the medical school attached to King's College Hospital in his twentieth year. He was a highly successful student, and after qualifying as M.R.C.S. Eng. and L.S.A. in 1871, he held the usual junior appointments at the hospital. He proceeded to the Fellowship of the College in 1874, and after acting as house physician at the Brompton Hospital graduated in medicine at the University of London in 1875, taking first-class honours in surgery. He then became surgical registrar to the hospital and also assisted Sir William Fergusson in his private practice. In 1876 he was appointed assistant surgeon to King's College Hospital, becoming full surgeon in 1885.

During the five-and-twenty years that William Rose served on the staff of King's College Hospital he built up for himself a great reputation as a practical surgeon, while his name became a familiar one to many generations of students because of his participation in the

[1] THE LANCET, August 18th, 1894, p. 381.
[2] THE LANCET, May 27th, 1899, p. 1411.



SIR FRANCIS SEYMOUR HADEN, F.R.C.S.
(From a photograph by Fredricks, New York.)

WILLIAM ROSE, M.B., B.S., F.R.C.S.
(From a photograph by Vandyk, London.)

ELIZABETH BLACKWELL, M.D.
(From a photograph by Elliott and Fry, London.)

authorship of the most popular text-book on surgery. The following notes upon Rose as a hospital surgeon have been sent to us by one who, having been his house surgeon, later became one of his colleagues upon the staff of the hospital:—"William Rose was essentially a practical surgeon and a teacher of practical surgery—full of experience gained by the use of his hands and abounding in common-sense. He looked upon surgical instruments and appliances as a skilled mechanic would look upon the tools he used in his trade. In his hands every instrument did its work with precision; and it was an evil day for those whose duty it was to look after them and keep them in order if, upon his operating day, he found one which was not up to the mark. To an onlooker who knew how instruments should be used it was a great pleasure to watch Rose operating. Though he had large and apparently clumsy fingers, they were in reality extraordinarily dexterous. To see his fingers working inside a small mouth when operating upon a cleft palate, or to watch him using the finest catgut in the finest curved needle in a hare-lip operation was to feel that one had met a master surgeon—one in whom coördination between brain and finger-tips was absolutely perfect. His kindness to patients under his care was a side of his character seen best by his house surgeons in charge of his beds or by the ward sisters; he was not a man to make any display of this side of his character. He would often come to the hospital at the dinner hour or at tea time in order to see for himself how the patients fared. It was no good telling Rose that such and such a patient took his food well, for, curiously enough, to say this was to create a suspicion in his mind that there was something wrong, and nothing would satisfy him but to see for himself. This was a little point upon which he was often misunderstood. He would seem to disbelieve what was told him by house surgeons and dressers, sisters and nurses. In reality, he was not so much testing their accuracy as their judgment: he was training them to be sound in making reports, and in the value of evidence which lay before their eyes. One characteristic I might well lay stress upon at a time when to some muddled minds the work of the scientific surgeon appears to be an inhumane work. Rose was devoted to animals. I well remember how the death by poison of a favourite Irish terrier upset him. The dog's body was given to me, as his house surgeon, with a request to find out the poison which had been taken. Its detection was a lengthy process, for the poison turned out to be phosphorus, but Rose's delight when it was discovered and when he knew where his reprisals should be directed was very keen. His revenge was speedy and drastic. Also he excelled as a host. The dinners which he gave to his house surgeons and dressers were functions never to be forgotten by those who participated. He was an admirable dinner-giver, and in these circumstances knew exactly how to make young men feel at their ease and how to get the most merriment out of the occasion. His joviality upon such occasions was infectious, and his downright good nature will linger in the minds of all those fortunate enough ever to have been present at one of these dinner parties. I venture to believe that there is not a man who 'dressed' for Rose who has not good reason to look back upon his six months' period of office with the greatest pleasure. All he learned in that time was thoroughly practical and of the greatest value to him in after life, and the facts were prepared for his absorption so pleasantly and with so little labour that the process was a pleasure. Everybody who worked under him, from his house surgeons down to the hospital porter, mourn his loss, and the more so knowing that his later years were full of sorrow and of suffering."

Rose's literary reputation rests chiefly on the "Manual of Surgery," which he published in conjunction with Mr. Albert Carless. This book was published in 1898, at a time when there was an urgent need for a good text-book on surgery for the use of the average student. The majority of the text-books in use at that date were either too bulky for the practical and examination purposes of the student or were of such a compact nature as to resemble surgical catalogues rather than efficient guides for students. The "Manual of Surgery" exactly filled the want of a large class of readers and a critical one—for the candidate for an examination is quick to find out what really helps him—and its persistent success proves that its favourable reception on its first appearance was fully justified. We said at the time that the book first appeared that it was no easy matter to include all that such a text-book should contain and yet not to introduce details which would serve only to overburden the memory of the student; and we found that the "Manual of Surgery" in very great part met the case. Since then we have had to review several editions of the work, and our verdict has been that it is the best text-book of surgery in English for all students who do not aim at the highest examinations, though it may, and frequently does, require supplementing in certain directions, which the teachers can indicate to different classes of learners. Amongst Rose's other contributions to surgical literature are papers on the treatment of Hare Lip and Cleft Palate, on Recurrent Aneurysm of the Superficial Femoral Artery after Ligature of the External Iliac, treated by Excision of the Sac,[1] on Removal of the Gasserian Ganglion for Severe Neuralgia,[2] on the Surgical Treatment of Trigeminal Neuralgia,[3] and also notes on a case of Double Hare-lip, on Primary Nerve Suture, and Gunshot Wound of the Knee-joint. All these contributions display him as the careful, skilful, practical surgeon that he is portrayed by his colleague in the preceding paragraphs.

In 1902 he was elected consulting surgeon to the hospital at King's College, and on his retirement from the post of professor of surgery he was made a member of the Council of the College, an Honorary Fellow, and was also appointed emeritus professor of surgery. In addition to these appointments he was consulting surgeon to the Royal Free Hospital, the High Wycombe Cottage Hospital, the Stanhope-street Dispensary, the St. John's Hospital, Twickenham, the Eagle Insurance Company, and the London and Brighton and Great Eastern Railway Companies. He continued to lead a full and busy professional life until some four years ago, and enjoyed among his colleagues as well as in his profession a well-deserved reputation for operative skill of the highest sort. At this time it may be remembered that under the severe nervous strain of a law-suit, in which he was involved as an expert witness, he absolutely broke down, and was for a short time placed in a home. From this shock he never recovered, although malignant disease did not close the sad story until last week.

ELIZABETH BLACKWELL, M.D. GENEVA, N.Y.

Dr. Elizabeth Blackwell, who died at Hastings on May 31st, in her ninetieth year, was the first woman to obtain a place upon the English Medical Register. She was born at the Counterslip, Bristol, on Feb. 3rd, 1821, the third daughter of Mr. Samuel Blackwell, a sugar refiner in that city. In the year 1832 her father, as a result of commercial losses, emigrated to the United States, where he died six years later, leaving a family of nine children. The task of supporting the family fell to the three elder sisters, who opened a school, Elizabeth Blackwell being only 17 years of age at the time, and in this manner they supported and educated their younger brothers and sisters. In 1842 the eldest son of the family obtained an opening in business and there was no longer the same necessity for the sisters to earn a livelihood by teaching, but Elizabeth Blackwell continued working, as a teacher of music more especially, with the definite intention to earn sufficient money to enable her to commence a course of medical studies. The idea of entering the medical profession is reported to have had its origin in the statement of a sick female friend that the sufferings of many women were increased by the necessity of receiving medical attention at the hands of a male adviser, a point of view taken by many of the first women who entered the ranks of medicine, but one upon which nowadays little stress is laid, far stronger arguments for equal treatment of the sexes in all walks of professional life being employed. Having determined to open the medical career to her sex, she went about the task in a business-like and brave manner.

Assured on all hands that she would get acceptance at no university, none the less, during three years which she spent in teaching music at Charleston, she studied medicine in her spare time under the private tuition of a Dr. Dickson, so that in 1847, when applying for admission to various medical schools, she could claim to

---

[1] THE LANCET, Dec. 22nd, 1883.
[2] THE LANCET, Nov. 1st, 1890.
[3] THE LANCET, 1892, Abstracts from the Lettsomian Lectures.

have had some experience. In 1847 she attended private courses in anatomy and midwifery conducted for her by two medical men in Philadelphia, and at length, in the same year and after 12 American medical institutions had refused to grant her admission, she was permitted to enter the University of Geneva in New York State, whose medical college is now merged in the medical faculty of Syracuse University. The professors of the medical faculty at the University of Geneva left the responsibility of the decision as to the advisability of admitting a woman to the medical classes to the medical students themselves. It is permitted to wonder if the professors calculated on receiving from the students a unanimous resolution favourable to Miss Blackwell's request; indeed, it is probable that they fully anticipated an expression of opinion from the students that would have justified them in imitating better known seats of learning and in declining to furnish facilities for the medical education of women; the unexpected, however, happened, and she entered the medical faculty of the University of Geneva on the invitation, as it were, of the male students. After a two years' course of study at this university, Miss Blackwell received in 1849 her medical degree, being thus the first woman medical graduate in the modern meaning of the phrase. Soon after taking her degree she visited England, but not finding it easy to pursue her medical studies in the land of her birth she proceeded to Paris, where she worked at midwifery for a year and a half in the Maternité and Hôtel Dieu Hospitals, and as a result of purulent ophthalmia contracted in the wards of the former she lost the sight of an eye. In 1850 Dr. Blackwell came to England again and spent a year in study at St. Bartholomew's Hospital, the enlightened influence of the dean, Mr. Paget (afterwards Sir James Paget), securing her admission. She then returned to America and started in private practice in New York. Patients were slow to come at first, but eventually she found herself conducting a large practice amongst women and children and winning recognition among practitioners of the other sex. In 1854, at which date she was joined by her sister Emily, who had by this time also graduated in medicine, she established a dispensary, thereby enormously increasing the clinical material under her observation, and this institution three years later developed into the New York Hospital for Women and Children. Dr. Emily Blackwell had studied medicine in the hospitals of New York, Edinburgh, Paris, and London, and had found her career made easier by the adaptability and resolution which had been displayed by her senior.

On revisiting England towards the close of 1859, Dr. Elizabeth Blackwell received a cordial welcome from many members of the medical profession in this country, while she was able, as a graduate of medicine at a recognised university prior to the Medical Act of 1858, to obtain admission to the first Medical Register. On the occasion of this visit she delivered a lecture on "Medicine as a Profession for Women" in London, addressing audiences also in Leeds, Birmingham, Manchester, and Liverpool upon the same subject. Undoubtedly she became in this way the pioneer of this movement in England. Women medical practitioners were not to have an easy path before them for some time, but her proselytising zeal showed them the road to success, and those who followed in her footsteps have shown no reluctance to acknowledge their debt to her.

During the civil war in America Dr. Elizabeth Blackwell took a leading part in arranging for the nursing of the wounded, and largely owing to her enthusiasm and powers of organisation the Ladies' Sanitary Aid Association came into being. When the war was over and the remarkable development of social life in the United States began to take place a medical school for women was founded in New York, and, as was inevitable, Elizabeth Blackwell was invited to occupy a chair, and became professor of hygiene. In this capacity she did good professional and public work, but after a time she returned to England to devote her energies more particularly to assisting the movement in her native country for the education of women as practitioners in medicine. She joined the staff of the New Hospital for Women, opened as a hospital in London in 1872, and held the chair of gynæcology in the London School of Medicine for Women. From this post she retired to pass the last years of her life at Hastings, but throughout her long life she remained in intimate touch with her medical colleagues, and never lost her deep interest in their work, and in all movements having as an objective the raising of women to positions in which, as she conceived, they could play their part fully in the betterment of the race.

Elizabeth Blackwell was a really distinguished woman. She worked untiringly for the causes she had at heart. She lived to see many of her views, which had been scouted when uttered by herself and a few others half a century previously, accepted as the commonplaces of social policy. She was actuated, as it is impossible not to feel if we read any of her numerous pamphlets, by the deepest religious sense, but she belonged essentially to that school of Christian which acts on the belief that God helps those who help themselves. Her published books and pamphlets are: "The Physical Education of Girls," "The Religion of Health," "The Moral Education of the Young, "The Human Element in Sex," "Pioneer Work in Opening the Medical Profession to Women"—a book which contains an interesting account of her childhood and other biographical details—and "The Scientific Method in Biology," and many of them obtained a large circulation. When she died on the last day of May in her home at Hastings she was in the ninetieth year of her age, and although she had been ill for some time her mental faculties were unimpaired.

Medical News.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—The annual general meeting of the above society was held on May 26th, Dr. G. F. Blandford, the President, being in the chair. During the past year 19 new members were elected; 10 died, and 4 resigned. The society consists at the present time of one honorary member, 142 life, and 149 ordinary members, making a total of 291, which, considering the number of medical men who are eligible for membership, is but a very small proportion. The advantages of the society, and the great amount of good which it does, cannot be better shown than by a short study of the balance sheet for the year. The invested funds amount to £100,550, from which was derived in interest the sum of £3124 18*s.*, £350 9*s.* 6*d.* being received in subscriptions and donations. Amongst the annuitants of the charity—namely, 48 widows and 13 orphans—the sum of £3018 was distributed, each widow receiving on an average £50, besides an additional £10 as a Christmas gift, and each orphan £12 and a gift of £3 at Christmas. The Copeland fund is a special fund which enables the society to grant to any widow or orphan already in receipt of the society's ordinary relief extraordinary assistance in special circumstances of unusual distress, such as blindness, paralysis, insanity, severe disabling accident, or grave permanent disease, and to continue such extra relief in the case of orphans beyond the age of 16 or 18 years (at which, under the society's existing by-laws, the ordinary relief ceases) for such further period as the court of directors may think fit. During the year three widows in receipt of grants died. One of these whose husband had paid in subscriptions £6 6*s.* had received £2900. Two widows were elected during the year, and on Dec. 31st there were 47 widows and 14 orphans in receipt of grants. One of the widows has been on the books since 1854 and has already received over £2250. Relief is only granted to the widows and orphans of deceased members who have paid their annual subscription for three years or who are life members. During the year nearly 50 letters were received from widows of medical men, who in many instances had been left practically penniless, asking for relief, but this had to be refused as their husbands had not been members of the society. The directors cannot too strongly urge upon the members of the medical profession, especially the younger, the desirability of joining the society. Membership is open to any registered practitioner who at the time of his election is resident within a 20-mile radius from Charing Cross. Should any member remove beyond the limits of the society, he nevertheless continues to be a member. The annual subscription is 2 guineas; every member who has paid this sum for 25 years becomes a member for life. Life membership may also be obtained by the payment of one sum, varying with the age of the applicant. A cordial vote of thanks was passed to the editors of the various medical

journals who from time to time insert notices of the society. The meeting closed with a vote of thanks to the chairman.

THE NEWTON ABBOT HOSPITAL.—As a result of a bazaar which was recently held at Newton Abbot the sum of £131 has been raised for the local hospital.

LITERARY INTELLIGENCE.—Messrs. Harper and Brothers announce for publication during June "The Science of Happiness," by Henry S. Williams, M.D., LL.D., author of "The Story of the Nineteenth Century Science," "A History of Science," &c. It is stated to be a suggestive account of how the results of modern science may be used in promoting the "happiness" of the age.

PRESENTATION TO PROFESSOR W. ROUX.—On June 9th Geheimrat Professor W. Roux of the University of Halle, a pioneer investigator of the mechanism of animal development, celebrated the sixtieth anniversary of his birthday. Many of his pupils and followers took the opportunity of presenting him with a *Festschrift* in two volumes, a souvenir publication consisting principally of addresses.

ST. THOMAS'S HOSPITAL.—In the recently issued report of St. Thomas's Hospital the treasurer states that the total expenditure for 1909 amounted to £63,431 1*s.* 10*d.*, while the income was £62,650 1*s.* 11*d.*, thus leaving a deficit of £780 19*s.* 11*d.* The lady almoner's report, which should be read as an appendix, describes the excellent work which is being done in the attempt to check hospital abuse by inquiring into the *bona fides* of each patient. Last year 6 per cent. of the out-patients were referred to the medical staff as being able to pay, and 8½ per cent. of the casualty cases were dismissed for the same reason. The lady almoner also endeavours so to improve the social condition of the patients that they may benefit to the full from their medical treatment. Patients are encouraged to help themselves by joining friendly societies and clubs. The workers in the department visited 3055 persons last year, the parents of sick children, maternity cases, and phthisical patients being the classes who received most attention.

KING EDWARD VII. SANATORIUM, MIDHURST.—We have received a copy of the third annual report of the King Edward VII. Sanatorium, which covers a period from July, 1908, to July, 1909. It has been drawn up under the direction of the consulting staff by the medical superintendent, Dr. N. D. Bardswell, aided by the senior assistant medical officer, Dr. James D. Macfie, the pathological portion having been contributed by Dr. J. A. D. Radcliffe. The clinical results obtained were on the whole satisfactory. 72 patients were admitted with incipient disease; in these, arrest occurred in 49 instances, 15 patients were "much improved," 5 "improved," and in 3 the condition was stationary. 121 patients were admitted with a "moderate" extent of disease; in these, arrest occurred in 16 instances, 52 patients were "much improved," 30 "improved," in 15 the condition was stationary, and 8 became worse. 87 patients were admitted with advanced disease; in these there was no instance of arrest; 14 patients were "much improved," 31 "improved," in 23 the condition was stationary, 17 became worse, and 2 died. A considerable amount of interesting work was carried out in the laboratory, especially in regard to secondary infections, and some patients were treated by vaccines made from the organisms isolated from the sputum; the numbers, however, are as yet too few to allow any definite conclusions to be drawn from the results. Several attempts were made to ascertain the presence of tubercle bacilli in the peripheral circulation; the technique adopted is fully described. 16 cases were examined. Of these, 14 were undoubted cases of pulmonary tuberculosis, bacilli having been found in the sputum. One was a very early case without sputum and with doubtful physical signs, but in which von Pirquet's cutaneous reaction was well marked, and in which the opsonic index to tubercle was found to be below normal on three occasions in succession; the other was within normal limits, and the von Pirquet test remained negative. Of the 14 undoubted cases, "acid-fast" bacilli having the morphological appearance of tubercle were found in each case. In the doubtful cases such organisms were not found. It will thus be seen that in addition to the therapeutical advantages offered to patients who seek treatment at the sanatorium useful scientific work is being conducted, thus carrying out the objects for which the sanatorium was founded.

THE SEWERAGE OF TIVERTON.—A Local Government Board inquiry was held at Tiverton, on June 1st, with regard to the application of the town council for sanction to borrow £2000 for works of sewerage and sewage disposal.

THE MEDICAL GOLFING SOCIETY.—This society held its annual tournament on June 2nd at Burnham Beeches by kind invitation of Burnham Beeches Golf Club. The "Henry Morris" challenge cup and the Medical Golfing Society's gold medal were tied for by H. A. Seagrove (12) and J. C. Briscoe (15) with 4 up, H. A. Seagrove taking the first prize in Class I. and J. C. Briscoe the first prize in Class II. The second prize in Class I. was tied for by C. M. Anderson (5), C. J. Marsh (10), and E. T. Robinson (10) with 3 up, while that in Class II. was won by W. H. Kelson with 1 up. The prize for best last nine holes in Class I. was tied for by K. Goadby and G. C. Bell, 2 up, and that in Class II. by C. F. Winkfield and Canny Ryall, 2 up. The foursomes sweepstakes resulted in six ties, G. C. Bell and H. H. Brown, F. Juler and L. Paton, C. M. Anderson and J. R. Walker, W. B. Reid and S. B. Christian, C. I. Graham and C. W. M. Hope, and A. S. Cobbledick and G. B. Scott, all being 1 up.

THE POOR-LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.—Announcements have been sent out that the annual meeting of this association will take place at 3 P.M. on Friday, July 1st, in the council chamber of the Town-hall of the county borough of Halifax, in accordance with the notice already published in these columns. The report of the council for 1909–10 is distributed at the same time and consists mainly of the details of the steps taken by the executive to secure, in the present unsettled state of Poor-law matters, some consensus of opinion from Poor-law medical officers as to the recommendations contained in the recent report or reports of the Royal Commissioners on the Poor-law. 3300 circulars were sent out, and the report contains the answers received, tabulated in accordance with an analysis made by Dr. Major Greenwood and Mr. A. Withers Green, and already published in THE LANCET (see THE LANCET, May 7th, p. 1292). Guided by these answers, the council of the association has framed resolutions, to be submitted to the general meeting at Halifax, protesting against a "break-up" of the present Poor-law system, against indiscriminate medical relief, and against amalgamation of the Poor-law and sanitary medical services, but advocating the retention of the system of "part-time" medical officers. If these resolutions are carried at the Halifax meeting they will come up again for confirmation at a general meeting to be held in London on Friday, July 29th, in connexion with the other meetings of the British Medical Association.

THE CORONERS' SOCIETY.—The annual dinner of the Coroners' Society of England and Wales was held at the Holborn Restaurant, London, on June 2nd, the President, Sir Luke White, M.P., being in the chair. Among the distinguished members and guests present were Sir John Tweedy, the Mayor of Holborn, Dr. W. Wynn Westcott, Mr. J. C. Malcolm, and Mr. H. E. Robinson, past presidents of the society, Sir Thomas Bramsdon and Mr. Luxmoore Drew (vice-presidents), Alderman Pond, J.P., Mr. J. R. Roberts (president of the Justices Clerks' Society), Dr. F. J. Waldo, Dr. W. H. Willcox, Mr. A. Banerji, Mr. Peter Byrne, Mr. P. Foster, M.P., Mr. Henry Rutherford, and Mr. Walter Schröder, the honorary secretary. The loyal toasts having been duly honoured, Sir John Tweedy proposed "The Coroners' Society." He referred to the fact that the office of coroner represented one of the oldest elements in the constitution, probably dating from the ninth century. The Coroners' Society dated back some 50 years, and the excellent work it had done was more than sufficient justification for its existence. As a representative of the medical profession, he was happy to say that the relations between that profession and coroners were almost invariably harmonious. Coroners freely acknowledged the debt of gratitude they owed to the medical profession, and medical men were grateful for the courtesy and help they received from coroners. Sir Luke White, in reply, also congratulated the society that little

difference of opinion existed between coroners and medical men. The report of the Departmental Committee on Coroners' Law and Inquests was an exceedingly valuable document. There was great need of legislation, and he hoped there would be legislation soon. Changes in the directions indicated by the committee would promote alike the interests of the society, coroners, and the community. Mr. Luxmoore Drew proposed "The Guests," to which Mr. Banerji, Mr. Roberts, Mr. Byrne, and Dr. Willcox replied.

BOOKS, ETC., RECEIVED.

AMERICAN CLIMATOLOGICAL ASSOCIATION (Secretary: Dr. Guy Hinsdale, Hot Springs, Virginia, U.S.A.)
Transactions of the American Climatological Association. For the Year 1909. Volume XXV. Price not stated.

BAILLIÈRE, TINDALL, AND COX, London.
Physical Diagnosis. By Richard C. Cabot, M.D. Fourth edition, revised, and enlarged. Price 15s. net.

BUTTERWORTH AND CO., London. SHAW AND SONS, London.
The Public Health (London) Act, 1891. With an Appendix containing Statutes affecting the Metropolis. Second edition. By Alexander Macmorran, M.A., and E. J. Naldrett, of the Middle Temple, Barrister-at-Law. Price not stated.
The Sale of Food and Drugs Acts, 1875 to 1907, and Forms, Regulations, Orders, and Notices issued thereunder, with Notes and Cases. By Sir William J. Bell, LL.D., of the Inner Temple, Barrister-at-Law. Fifth edition. By Charles F. Lloyd, Of the Inner Temple and Midland Circuit, Barrister-at-Law. The Chemical Notes revised and enlarged by R. A. Robinson, of the Middle Temple, Barrister-at-Law. Price not stated.

CHURCHILL, J. AND A., London.
Allen's Commercial Organic Analysis. Volume II. By the Editors and the following contributors: C. Ainsworth Mitchell, Leonard Archbutt, C. Revis, E. R. Bolton, C. A. Klein, W. Robertson, John Addyman Gardner, and Augustus H. Gill. Fourth edition. Entirely rewritten. Edited by Henry Leffmann, M.A., M.D., and W. A. Davis, B.Sc., A.C.G.I. Price 21s. net.

CONSTABLE AND CO., LIMITED, London.
International Language and Science. Considerations on the Introduction of an International Language into Science. By L. Couturat, O. Jesperson, R. Lorenz, W. Ostwald, and L. Pfaundler. Translated by F. G. Donnan, Professor at the University of Liverpool. Price 2s. net.

KEENER, GEORGE, AND CO., London.
The Surgery and Pathology of the Thyroid and Parathyroid Glands. By Albert J. Ochsner, A.M., M.D., LL.D., and Ralph L. Thompson, A.M., M.D. Price 25s. net.

MACMILLAN COMPANY, THE, New York.
The Building and Care of the Body. An Elementary Text-book in Practical Physiology and Hygiene. By Columbus N. Millard. Price 2s. 6d.

REBMAN, LIMITED, London.
Agricultural Bacteriology. A Study of the Relation of Germ Life to the Farm with Laboratory Experiments for Students. By H. W. Conn, Ph.D. Second edititon, revised and enlarged. Price 9s. net.
Anæsthesia in Dental Surgery. By Thomas D. Luke, M.D., F.R.C.S. Ed., and J. Stuart Ross, M.B., F.R.C.S. Ed. Third edition. Price 6s. net.
Diagnostic Methods, Chemical, Bacteriological, and Microscopical. By Ralph W. Webster, M.D., Ph.D. Price. 26s. net.
Emergency Surgery. For the General Practitioner. By John W. Sluss, A.M., M.D. Second edition, revised and enlarged. Price 15s. net.
Food and Hygiene. A Treatise upon Dietetics and Hygienic Treatment. By William Tibbles, LL.D., M.D., L.R.C.P., M.R.C.S., L.S.A. Price 5s. net.
Lectures on Cosmetic Treatment. A Manual for Practitioners. By Dr. Edmund Saalfeld of Berlin. Translated by J. F. Halls Dally, M.A., M.D., B.C. Cantab., M.R.C.P. Lond. With an Introduction and Notes by P. S. Abraham, M.A., M.D., B.Sc., F.R.C.S.I. Price 5s. net.
Medical Diagnosis. A Manual for Students and Practitioners. By Charles Lyman Greene, M.D. Third edition, revised. Price 15s. net.
Ophthalmic Surgery. By Charles H. Beard, M.D. Price 22s. net.

RIVERDALE PRESS, Brookline, Mass., U.S.A.
Transactions of the American Urological Associatin. Eighth Annual Meeting at Atlantic City, N.J., June 7th and 8th, 1909. Edited by Charles Greene Cumston, M.D. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

BINGHAM, S. O., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Alfreton District of the county of Derby.

DONALDSON, ROBERT, M.B., Ch.B., F.R.C.S. Edin., has been appointed Junior Demonstrator in Pathology at the University of Sheffield.

EVANS, D. GORDON, M.B., B.S. Lond., has been appointed House Physician at the Mount Vernon Hospital, Hampstead.

FOX, C. TILBURY, M.R.C.S., L.R.C.P. Lond., has been appointed Junior Medical Officer to the Ashford Cottage Hospital.

MCDONAGH, J. E. R., F.R.C.S. Eng., has been appointed Surgeon to Out-patients at the London Lock Hospital.

MORTIMER, WILLIAM GRADDON, M.B., B.S. Lond., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Medical Officer and Public Vaccinator for the South Molton District by the South Molton (Devon) Board of Guardians.

PACKE, G. G., M.B. Cantab., L.D.S.R.C.S., has been appointed Dental Surgeon to the Evelina Hospital for Sick Children.

ROBERTS, W. EDGAR, M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at the South Devon and East Cornwall Hospital, Plymouth.

ROWELL, J. G., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the West Huddersfield District of the county of York.

SEAL, PHILIP HENRY, M.B., B.S. Lond., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer and Public Vaccinator for the Filleigh, Bucklands, and Charles District by the South Molton (Devon) Board of Guardians.

WALKER, CYRIL HUTCHINSON, M.B. Cantab., F.R.C.S., has been re-appointed Ophthalmic Surgeon to the Bristol General Hospital.

WATSON, J. K., M.D. Edin., has been appointed Medical Officer to the Post Office, Witney; Certifying Factory Surgeon to the Witney District; and Assistant Medical Inspector to the Oxford Education Committee.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ALBERT DOCK HOSPITAL, Connaught-road, E.—Senior House Surgeon. Salary £75 per annum, with board, residence, and washing. Also House Surgeon. Salary £50 per annum, with board, residence, and washing. Each for six months.

BATH, ROYAL MINERAL WATER HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with lodging, board, and washing.

BENENDEN, KENT, NATIONAL SANATORIUM.—Assistant Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and washing.

BEVERLEY, EAST RIDING LUNATIC ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and washing.

BIRMINGHAM GENERAL HOSPITAL.—Resident Surgical Officer. Salary £100 per annum, with residence, board, and washing.

BIRMINGHAM, QUEEN'S HOSPITAL.—House Physician for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

BIRMINGHAM, WARWICKSHIRE COUNTY COUNCIL.—Assistant County Medical Officer of Health. Salary £250 per annum.

BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.

BRECKNOCK COUNTY AND BOROUGH INFIRMARY.—Resident House Surgeon, unmarried. Salary £120 per annum, with apartments, board, attendance, &c.

BROOKWOOD, NEAR WOKING, SURREY COUNTY LUNATIC ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £200 per annum, with board, lodging, and laundry.

BURY INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon; also House Surgeon for Ophthalmic and Ear and Throat Departments, each for six months. Salary £30, with board, residence, and laundry.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with rooms, board, washing, and attendance. Also Honorary Aural Surgeon.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, S.E.—House Physician. Salary at rate of £60 per annum, with board, residence, and washing.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—Resident Medical Officer. Salary £120 per annum, with board, lodging, and laundry.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HEREFORD COUNTY AND CITY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £120 per annum, with board, apartments, laundry, &c.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician and Assistant Casualty Medical Officer, unmarried, for six months. Salary £30, with board and residence.

HULL, ROYAL INFIRMARY.—Casualty House Surgeon for six months. Salary at rate of £60 per annum, with board and lodging.

INDIAN MEDICAL SERVICE, India Office, London.—Fifteen Commissions in His Majesty's Indian Medical Service.

LEEDS HOSPITAL FOR WOMEN AND CHILDREN.—House Surgeon for seven months. Salary at rate of £50 per annum, with board.

LEICESTER BOROUGH ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, and washing.

LINCOLN COUNTY HOSPITAL.—Senior House Surgeon, unmarried. Salary £125 per annum, with board, lodging, and washing. Also Junior House Surgeon, unmarried, for six months. Salary at rate of £75 per annum, with board, residence, and washing.

LIVERPOOL EYE AND EAR INFIRMARY, Myrtle-street.—House Surgeon. Salary £80 per annum, with board, rooms, and laundry.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—House Surgeon for six months. Salary £75 per annum.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Third Resident Medical Officer. Salary £60 per annum, with board, residence, and laundry.

NOTTINGHAM CHILDREN'S HOSPITAL.—House Surgeon (female) for six months. Salary at rate of £100 per annum, with board, apartments, and washing.

NOTTINGHAM CITY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and laundry.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £60 per annum, with board, lodging, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Two House Surgeons and Two House Physicians for six months. Salary at rate of £80 per annum, with board, residence, and washing, in each case. Also Assistant Physician.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Junior Obstetric Assistant and Clinical Assistants (all females.)

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.—Junior Resident Medical Officer. Salary at rate of £40 per annum, with board and washing.

SALFORD UNION INFIRMARY.—Resident Assistant Medical Officer, unmarried. Salary £120 per annum, with apartments, attendance, and rations.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodging, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £90 per annum, with residence, board, and washing.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

TEIGNMOUTH HOSPITAL, S. DEVON.—House Surgeon. Salary £80 per annum, with board, residence, and laundry.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board lodging, and washing.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician for six months. Salary £30, with board, lodging, and laundry.

WAKEFIELD, WEST RIDING ASYLUM.—Locum Tenens Assistant Medical Officer. Salary £3 3s. per week, with apartments and board.

WEST BROMWICH DISTRICT HOSPITAL.—Assistant Resident House Surgeon, unmarried. Salary £75 per annum, with board, residence, and washing.

WEST END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck-street, W.—Four Clinical Assistants for six months.

WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.—Assistant House Surgeon.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL—House Surgeon.

WORKSOP DISPENSARY AND VICTORIA HOSPITAL.—Medical Officer and House Surgeon. Salary £150 per annum, with rooms, furniture, coals, gas, &c,

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Glenarm, in the county of Antrim; at Southam, in the county of Warwick; and at Rathfriland, in the county of Down.

Births, Marriages, and Deaths.

BIRTHS.

MORE.—On June 4th, at Rothwell, near Kettering, the wife of John More, M.R.C.S. Eng., L.R.C.P. Lond., L.S.A., of a son.

MARRIAGES.

CLARIDGE—BURTON.—On Wednesday, June 1st, at Christ Church Eaton, Norwich, George Percival Charles Claridge, M.B., B.S. Lond., to Grace Margaret, second daughter of Mr. and Mrs. George J. Burton of Norwich.

CRAWFORD—CHAVANNES.—At Richmond Terrace Chapel, Bradford, on June 1st, by the Rev. George Frayn, John C. Crawford, M.B., C.M., of Keighley, to Marguerite, elder daughter of Mons. Edouard Chavannes, Civil Engineer, Lausanne. At home, 3, Haincliffe-road, Ingrow, Keighley, July 5th.

MCKAY—MOREY.—On June 1st, at St. Mary's, Wimbledon, Joseph Boyle McKay, M.D., M.Ch., &c., to Florence Eveline, only daughter of the late Henry W. Morey and of Mrs. Morey.

STEWART—WENDOVER.—On June 2nd, by special licence, at St. John's Church, Walmer, Port Elizabeth, Cape Colony, Andrew Stewart, M.B., Ch.B. Glasg., to Dorothy Kathleen Mary, second daughter of Edwin Wendover, of Braughing, Herts, England.

DEATHS.

BLACKWELL.—On May 31st, at Rock House, Hastings, Elizabeth Blackwell, M.D., in her 90th year.

MURRAY.—On June 4th, at Edinburgh, John Murray, Brigade Surgeon, late H.M. Madras Army, aged 75 years.

PEAKE.—On June 5th, at Homefield, Platt's-lane, Hampstead, William Harland Peake, M.D., B.S., aged 40 years.

SPENCER.—On May 27th, at 8, Osberton-road, Oxford, William Henry Spencer, M.A., M.D. Cantab., M.R.C.P., F.L.S., Consulting, late Senior, Physician of the Bristol Royal Infirmary, late Lecturer on Medicine at Bristol University Medical School, aged 72 years.

STARTIN.—On June 2nd, at Broadstairs, James Startin, M.R.C.S., aged 59 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

CHINESE PORK.

DURING the year 1909 several questions were asked of the President of the Local Government Board in the House of Commons as to whether the carcasses of pigs imported into this country from China were wholesome. As a result of these questions an inquiry was instigated, and in the report of the Public Health Department recently published, Dr. W. Collingridge, the medical officer of health of the City of London, makes an important statement in reference to this matter. In July, 1909, a vessel from China arrived at the Royal Albert Docks with 4663 frozen pigs on board. When the carcasses had been thawed and examined it was found that 391 were unfit for food, this notwithstanding the fact that they bore labels (attached at the port of shipment) to the effect that the meat had been "medically examined and certified free from disease." Dr. Collingridge states that the glands had not been examined, and he concludes therefore that the inspection must have been of a most perfunctory nature. On communication with the medical man whose signature appears on these labels, Dr. Collingridge found that he did not act in any official capacity, but merely as a private examiner on behalf of the English importers. Dr. Collingridge has received an assurance that the examination at the Chinese port will be more exactly carried out in the future. In the report attention is drawn to the magnitude of the task of examining so many carcasses, and it is stated that in the event of an increase in this trade with China the examination cannot be adequately conducted on the lines of the present system. The British Consul at Hankow has given his assurance that pigs of the wild variety, which live as scavengers in the public streets of the Chinese towns, are not exported to England, but that the animals which are sent here are raised on well-managed pig-farms in the district between Tungling Lake and Lokow.

THE COST OF THE MOTOR-CAR.

To the Editor of THE LANCET.

SIR,—Last year I sent you a note, which you inserted in your issue of May 8th, 1909, giving particulars of the cost of running my 12-h.p. "Star" car. The second year's figures make an interesting comparison with those of the first year, and give evidence of the consistent performance and reliability of the car. I have never been stopped on the road, except for tyre trouble. The figures for this year are:—

	£.	s.	d.
Petrol	14	2	2
Tyres	13	4	7
Repairs and replacements (including engine overhaul £6)	11	1	6
Oil, grease, and sundries	2	12	4
Insurance and licence	13	16	6
	54	17	1

The mileage for the 12 months was 5785. Last year's total cost was £48 17*s.* 7*d.* for 6045 miles. This year's cost has been practically the same, the extra £6 being for an overhaul of the engine after having done 10,000 miles. I am, Sir, yours faithfully,

Liverpool, June 2nd, 1910. J. SAFFLEY, M.B. Edin.

THE POST OF MATRON AT ST. BARTHOLOMEW'S HOSPITAL.

CONSIDERABLE dissatisfaction exists among the nurses at St. Bartholomew's Hospital in consequence of the appointment of an assistant matron from the London Hospital as successor to Miss Isla Stewart, the late matron of St. Bartholomew's Hospital. On June 6th, in the rooms of the Medical Society of London, Chandos-street, W., a meeting of "trained nurses and others interested in the efficient care of the sick" was presided over by Miss Maud Banfield, when a vigorous protest was made against the appointment. Among a number of letters of sympathy which were read by the honorary secretary was one from Dr. Leonard C. T. Dobson who wrote: "I can conceive of no step more calculated to damage the prestige of the St. Bartholomew's nurses in the eyes of the public than this one, or to undermine the feelings of loyalty of the Bart.'s staff to their own institution." In another letter Dr. Richard J. Reece said: "On the face of it, and unless adequate explanation is forthcoming, it seems to me that a grave slight has been passed on a number of ladies who have in no way deserved such treatment." On the proposal of Miss Kingsford, seconded by Mrs. Stabb, a long resolution calling for a public inquiry was carried unanimously. This resolution included the following: "This meeting furthermore is strongly of opinion that the said public inquiry should also investigate the condition of the nurses' home of St. Bartholomew's Hospital, which has for years been condemned as insufficient for the accommodation of the nursing staff, as insanitary,

and as a death-trap in case of fire for the nurses who occupy the antiquated houses which compose the home." Mrs. Bedford Fenwick expressed her belief that no woman since Miss Florence Nightingale had done more for the improvement of nursing than Miss Isla Stewart. She considered the action of the authorities almost a crime and thought that the challenge thrown down by autocratic trustees of charitable funds should be met at once by a demand for immediate legislation to protect nurses from coercion and persecution. Before the conclusion of the meeting, which was characterised by great animation throughout the proceedings, it was decided to send copies of the resolution to His Majesty the King, as President of St. Bartholomew's Hospital, to every governor, and to the members of both Houses of Parliament, praying "that justice shall be done to the memory of a noble woman and to the body of women trained under her direction."

THE "NONGAR" PIPE.

INNUMERABLE as are the devices which are directed to condensing the tar oils and bases of tobacco smoke in the pipe before they reach the mouth of the consumer, there would appear to be room for one more in the "Nongar" pipe on the ground chiefly of its simplicity of construction and action. There is a lateral space under the bowl into which the mouth-piece projects. There is a free space round this projection, so that the drainage of condensed oils down the mouth-piece is avoided, and, further, this condensing chamber is lined with aluminium which prevents the oils soaking into the wood of the bowl. The result is satisfactory so long as care is taken to withdraw the condensed oils and water as they accumulate. The pipe, which bears no evidence in external appearance of any special construction, was submitted to us by the "Nongar" Pipe Company of Strand-road, Liverpool.

THE MEDICAL LAW-STUDENT.

To the Editor of THE LANCET.

SIR,—Would you or some of your correspondents kindly answer the following questions through your columns:—1. Is it quite possible for a medical man to read for the Bar with any prospective measure of success in his spare time? 2. Should it be done with the help of a "correspondence coach"?

Any experiences of your subscribers or other medical men who have done this would be appreciated by

Yours faithfully,

June 5th, 1910. LEGAL.

*** Our correspondent may have noticed by announcements in our columns that many of his medical colleagues have read for the Bar successfully while carrying out their medical engagements, but obviously the ease with which this can be done depends first on the attainments of the man, and, secondly, on the amount of his spare time.—ED. L.

DISTILLERY WASTE.

A VERY serious source of pollution to certain of the Scotch rivers is the offensive residue obtained in the manufacture of whisky, and it has only recently been demonstrated on a practical basis that a method of bacteriological purification will successfully deal with this nuisance. The first distillers to adopt with success the methods of purification recommended by the Royal Commission on Sewage Disposal in its sixth report are the proprietors of the Craigellachie Distillery, one of the White Horse distilleries. These distilleries were recently visited by some representatives of the Commission, who expressed great satisfaction with the results obtained. The standard of purification attained is evidently high, since the final effluent produced by this bacteriological process of purification is such that salmon ova have been successfully hatched in it and fish life is abundantly supported. These experiments in a public health matter of great importance are decidedly interesting.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, June 8th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
June 2	29·77	S.W.	0·01	125	69	55	57	59	Cloudy
,, 3	29·89	S.W.	0·05	125	72	52	55	60	Fine
,, 4	29·64	W.	...	109	67	54	55	59	Overcast
,, 5	29·72	N.E.	0·01	91	64	53	56	59	Overcast
,, 6	29·84	N.E.	...	122	71	54	55	59	Fine
,, 7	29·96	E.	...	110	76	57	60	61	Overcast
,, 8	30·02	N.E.	0·07	115	76	61	63	67	Overcast

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

TUESDAY.

SURGICAL SECTION (Hon. Secretaries—Walter G. Spencer, Jonathan Hutchinson), in the Large Theatre, Medical School, University College, W.C.: at 5.30 P.M.

Discussion:

On the Present Position of the Treatment of Syphilis. (Second Meeting.)

WEDNESDAY.

SPECIAL MEETING OF FELLOWS OF THE SOCIETY at Morley Hall, George-street, Hanover-square, W.: at 5 P.M.

Discussion:

On Vaccine Therapy, its Administration, Value, and Limitations (Fifth Meeting). Re-opened by Mr. Deane Butcher, and continued by Dr. Lewis Jones, Dr. L. S. Dudgeon, Dr. David Lawson, Dr. Crace-Calvert, Mr. Leonard Noon, Dr. Wm. Parry Morgan, Dr. J. C. MacWatters.

THURSDAY.

DERMATOLOGICAL SECTION (Hon. Secretaries—E. G. Graham Little, H. G. Adamson) at 11, Chandos-street, W.: at 5 P.M. Demonstration of Cases.

ROYAL SOCIETY.

THURSDAY.—Ordinary Meeting.

UNITED SERVICES MEDICAL SOCIETY, Royal Army Medical College, Grosvenor-road, S.W.

FRIDAY.—3 P.M., Annual General Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY AND THURSDAY.—5 P.M., Dr. F. W. Andrewes: The Behaviour of the Leucocytes in Infection and Immunity.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. H. G. Adamson: Clinique (Skin). 5.15 P.M., Lecture:—Sir John Broadbent, Bart.: Malignant Endocarditis.

TUESDAY.—4 P.M., Dr. W. Ewart: Clinique (Medical). 5.15 P.M. Lecture:—Mr. A. Carless: Malignant Disease of Bone (lantern illustrations).

WEDNESDAY.—4 P.M., Mr. J. P. Freyer: Clinique (Surgical). 5.15 P.M. Lecture:—Mr. W. Stuart Low: Malignant Disease of the Nasal Passages, its Pathology, Diagnosis, and Treatment.

THURSDAY.—4 P.M., Dr. C. T. Williams: Clinique (Medical). 5.15 P.M., Lecture:—Dr. G. Oliver (Harrogate): Some Bedside Clinical Methods with Demonstrations and Examples.

FRIDAY.—4 P.M., Dr. StClair Thomson: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. B. Harman: Acute Iritis.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 11.30 A.M., Demonstrations in Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. Pritchard: Clinical Pathology.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. Morton: X Ray Examination of Urinary System.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Baldwin: Practical Surgery. (Lecture III.)

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medical Registrar: Demonstrations of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Saunders: Clinical (with Cases).

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. Howell Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson). 4.30 P.M., Medical In-patient (Dr. A. J. Whiting).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 4.30 P.M., Lecture-Demonstration:—Mr. A. de Prenderville: Anæsthetic Dangers and How to Avoid Them.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie). Demonstration (at the Northwood Sanatorium):—Dr. A. J. Whiting: The Diagnosis and Treatment of Early Pulmonary Tuberculosis.

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. Howell Evans). 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 4 P.M., Special Lecture:—Mr. R. Lake: Operation for Acute Mastoid Disease.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 4 P.M., Special Lecture:—Mr. J. Taylor: Some Clinical and Pathological Aspects of Nervous Disease.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

THURSDAY.—4 P.M., Lecture:—Mr. Waugh: Acute and Chronic Inflammatory Lesions of Bone.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4 P.M., Lecture:—Dr. Habershon: Mitral Stenosis.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY AND FRIDAY.—3.45 P.M., Lecture:—Dr. A. Wylie: Larynx.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Clinical Lecture:—Sir William Gowers: Vertigo.

WEDNESDAY.—5 P.M., Demonstration:—Mr. P. Sargent: Surgery of the Nervous System—Cranial Injuries.

FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. E. F. Buzzard: Cases. 5 P.M., Demonstration:—Mr. P. Sargent: Surgery of the Nervous System—Surgical Treatment of Lesions of the Spinal Cord.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C. (in the Lecture Room of the Institute).

WEDNESDAY.—6 P.M., Brevet Lieut.-Colonel Sir W. B. Leishman: Anti-Typhoid Inoculation. (Harben Lecture.)

MANCHESTER ROYAL INFIRMARY.

TUESDAY AND THURSDAY.—4.30–5.30 P.M., Honorary Staff: Post-Graduate Clinical Demonstration (Medical, Surgical, and Special Departments).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (13th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (14th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (15th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (16th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (17th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (18th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free from THE LANCET Offices, have been reduced, and are now as follows:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

(The rate for the United Kingdom will apply also to Medical Subordinates in India whose rate of pay, including allowances, is less than Rs. 50 per month.)

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London County and Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE.

The Manager will be pleased to forward copies direct from the Offices to places abroad at these rates, whatever be the weight of any of the copies so supplied.

SOLE AGENTS FOR AMERICA—Messrs. WILLIAM WOOD AND CO., 51, Fifth Avenue, New York, U.S.A.

Communications, Letters, &c., have been received from—

A.—Dr. B. Anningson, Cambridge; Messrs. E. Archer and Co., Malvern; *American Journal of Clinical Medicine*, Chicago, Manager of; Dr. Lewis H. Adler, jun., Philadelphia; Anglo-American Pharmaceutical Co., Croydon; *Army and Navy Gazette*, Lond.; Association of Patent Experts, Lond.; Dr. James F. Allen, Pietermaritzburg.

B.—Messrs. Blundell and Rigby, Lond.; Mr. J. Billmeier, Lond.; Birmingham General Hospital, Secretary of; Mr. A. Bishop, Lond.; Dr. M. Blok, Lond.; Dr. F. E. Batten, Lond.; Dr. J. S. Bolton, Nottingham; Mr. W. G. Burcombe, Lincoln; Messrs. Battle and Co., Neuilly; Bury Infirmary, Hon. Secretary of; Messrs. C. Barker and Sons, Lond.; Messrs. A. Burbridge and Co., Lond.; Messrs. Boulton and Paul, Norwich; Messrs. Burgoyne, Burbidges, and Co., Lond.; Mr. S. H. Benson, Lond.; Bristol Myers Co., Brooklyn, U.S.A.; Beable's Advertising Agency, Lond.; British Union for the Abolition of Vivisection, Lond., Secretary of; Mr. J. A. Barnes, Lond.; Mr. Charles Budd, Shanghai.

C.—Mr. F. W. Clarke, Chorlton-cum-Hardy; Croydon Corporation, Clerk to the; Camberwell Guardians, Lond., Clerk to the; Coventry and Warwickshire Hospital, Secretary of; Messrs. J. and A. Churchill, Lond.; Dr. F. Calot, Berck-Plage; Dr. H. C. Cameron, Lond.; Messrs. Carfax and Co., Lond.; Cardiff Infirmary, Secretary of; Mr. H. Ley Clark, Lond.; Messrs. A. H. Cox and Co., Brighton; Central News, Lond., Manager of; Mr. D. Cotes-Preedy, Gerrard's Cross.

D.—Mr. R. W. Doyne, Lond.; Mr. R. C. Davies, Liverpool; Mr. E. Q. Derriman, Lond.; Dr. C. A. A. Dighton, Scarborough; Messrs. Durand, Bennett and Co., Lond.; Messrs. F. Davidson and Co., Lond.; Mr. A. E. Duchesne, Lond.; Major C. Donovan, I.M.S., Madras.

E.—Dr. C. Ewart, Lond.

F.—Dr. C. E. Finlay, Havana; Mr. P. V. Fry, Sowerby Bridge; Mr. T. Jefferson Faulder, Lond.; Dr. A. Mearns Fraser, Portsmouth.

G.—Dr. R. Martin Gil, Malaga; Mr. David M. Greig, Dundee; Dr. C. C. Guthrie, Pittsburg; General Medical Council, Lond., Registrar of; Glasgow District Lunacy Board, Gartcosh, Clerk to the; Gloucestershire Royal Infirmary, Gloucester, Secretary of.

H.—Dr. F. Hare, Beckenham; Mr. W. J. Harris, Cambridge; Mr. A. T. Harrison, Sherburn; Hull Royal Infirmary, Secretary of; Hereford County and City Asylum, Clerk to the; Dr. D. Fraser Harris, Birmingham; Messrs. Hooper and Batty, Lond.; Mr. N. Bishop Harman, Lond.; Hove Borough Education Committee, Secretary of.

I.—India Rubber, Gutta Percha, and Telegraph Works Co., Lond.

J.—Mr. W. H. Johnston, Dublin; Dr. J. Johnston, Bolton.

K.—Messrs. R. A. Knight and Co., Lond.; K L. S.; Kidderminster Pencil Co., Manager of; Messrs. Krohne and Sesemann, Lond.; Dr. A. M. Kennedy, Glasgow; Mr. Shridhar V. Ketkar, Ithaca.

L.—Mr. H. K. Lewis, Lond.; Leeds Hospital for Women and Children, Secretary of; Mr. E. Lakovski, Lond.; *Liberty*, Lond.; Brevet Lieutenant-Colonel Sir W. B. Leishman, R.A.M.C., Lond.; Liverpool Eye and Ear Infirmary, Hon. Secretary of; Mrs. Langworthy, Lond.; Messrs. Lee and Nightingale, Liverpool; Mr. T. P. Legg, Lond.; Mr. E. Lewis, Burnley.

M.—Mr. R. J. Macredy, Lond.; Mr. J. Wallace Milne, Aberdeen; Messrs. Maple and Co., Lond.; Dr. J. MacEwen, Glasgow; Maltine Manufacturing Co., Lond.; *Medical Review*, Lond., Manager of; Medical Graduates' College and Polyclinic, Lond.; Metropolitan Asylums Board, Lond., Clerk to the; Mysore Government, Bangalore, Senior Surgeon to; Mr. J. F. Mackenzie, Edinburgh; Mr. P. Lockhart Mummery, Lond.; Dr. B. Melland, Altrincham; Sir H. Morris, Bart., Hythe; Dr. S. G. Moore, Huddersfield.

N.—Mr. J. C. Needes, Lond.; Mr. H. Needes, Lond.; Natural Food Reform Association, Lond.; Nottingham Children's Hospital, Secretary of; Newport and Monmouthshire Hospital, Secretary of; Nottingham General Hospital, Secretary of; Messrs. D. Van Nostrand Co., New York; Nottingham City Asylum, Clerk to the; National Sanatorium Association, Benenden, Secretary of.

O.—Mr. C. Jocelyn O'Hellier, Lond.; Professor Dr. A. Oppel, Halle.

P.—Dr. W. A. Potts, Edgbaston; Messrs. Parkin, Ness, and Co., Darlington; Mr. N. Porter, Lond.; Dr. Pierre's Eau Dentifrice, Lond., Manager of; *Phonographic Record*, Lond.; Mr. Frank T. Paul, Liverpool.

Q.—Queen's Hospital, Birmingham, Secretary of.

R.—Royal Meteorological Society, Lond.; Royal Society, Lond.; Messrs. Reynolds and Branson, Leeds; Royal Society of Medicine, Lond., Secretary of; Messrs. Reitmeyer and Co., Lond.; Royal National Orthopædic Hospital, Lond., Secretary of; Royal Hampshire County Hospital, Winchester, Secretary of.

S.—Scholastic, Clerical, &c., Association, Lond.; Messrs. W. H. Smith and Son, Stafford; Messrs. G. Street and Co., Lond.; Dr. A. B. Sloan, Salsomaggiore; Salford Union, Clerk to the; Messrs. Salt and Son, Birmingham; Sir J. Sawyer, Birmingham; Dr. A. Wood Smith, Harrogate; Messrs. R. Sumner and Co., Liverpool; Seamen's Hospital Society, Lond., Dean of; Society for the Relief of Widows and Orphans, Lond., Secretary of; Dr. D. Sommerville, Lond.; Mr. Arthur A. Straton, Brighton; Dr. E. Schloesser, Wiesbaden; Sanitas Co., Lond., Managing Director of; Messrs. L. Stolkind and Co., Lond.; Mrs. Spencer, Oxford; Mr. E. Staude, Berlin; The Standard Life Assurance Co., Lond., General Secretary of; St. Thomas's Hospital, Lond., Treasurer of

T.—Mr. J. Thin, Edinburgh; Mr. G. S. Thompson, Lond.; Dr. H. Wolferstan Thomas, Havre; Trinidad Association for the Prevention and Treatment of Tuberculosis; Taunton and Somerset Hospital, Secretary of.

U.—Mr. Harold Upcott, Hull; Mr. Fisher Unwin, Lond.

W.—Dr. Richard Weiss, Lond.; Mr. J. Bell Walker, Ayr; West London Hospital Post-Graduate College, Dean of; Dr. Walter G. Walford, Lond.; Messrs. J. Wright and Sons, Bristol; W. A.; Warwickshire County Council, Birmingham, Medical Officer of Health to the; Waterbury Chemical Co., Des Moines; Worksop Dispensary, Secretary of; Mr. W. Whitely, Lond.; Mr. R. T. Wilkinson, Manchester; Mr. W. M. Williams, Springfield, U.S.A.

Z.—Messrs. C. Zimmermann and Co., Lond.

Letters, each with enclosure, are also acknowledged from—

A.—Messrs. Allen and Hanburys, Lond.; Dr. R. Ackerley, Llandrindod Wells; A. H. H.; A. F.; Ashwood House, Kingswinford, Medical Superintendent of; A. T.

B.—Mr. Heather Bigg, Lond.; Mr. J. W. Barber, Lond.; Messrs. C. Bogler and Co., Lond.; Borax Consolidated, Lond., Manager of; Dr. G. J. Blackmore, Christchurch, New Zealand; British Linen Bank, Aberdeen, Manager of; Messrs. W. H. Bailey and Son, Lond.; Mr. F. J. Breakell, Farnworth-in-Widnes; Dr. G. B. Buchanan, Glasgow.

C.—Dr. J. C. Crawford, Keighley; Dr. H. W. Crowe, Yelverton; Messrs. Cowley and Co., Manchester; Coachman, Leicester; Mr. J. P. Cullen, Launceston.

D.—Lieutenant-Colonel Davies, R.A.M.C.T., Ebbw Vale; D. F. R.; Mr. G. Drury, Newcastle-on-Tyne; Denbighshire Infirmary, Denbigh, Secretary of; D. J. J.; Messrs. Dawson and Sons, Lond.; Messrs. R. C. Davies and Co., Liverpool.

E.—Essex County Council, Chelmsford, Accountant to the; E., Croydon; E. A.

F.—F. L.

G.—Dr. S. Gill, Formby; G. K.; G. G. M.; G. A. B.; G. B. D.; Messrs. Gilyard Bros., Bradford.

H.—Mr. F. E. Heubeck, Pontypool; Messrs. C. Hearson and Co., Lond.; H. B.; H. C. K. M.; Messrs. W. C. Henderson and Son, St. Andrews; Mr. T. Hannah, Amersfoort; Home and Colonial Training College, Lond., Clerk to the; Mr. T. H. Hewitt, Lond.; H. K. M.; H. H.

I.—Messrs. Ingram, Cree, and Co., Lond.; Incorporated Society of Trained Masseuses, Lond., Secretary of.

J.—Mr. E. W. Jollye, Great Yarmouth; Jersey General Dispensary, Hon. Treasurer to the; Jenner Institute for Calf Lymph, Lond., Secretary of; J. B. B.; J. M. S.; J. H.; J. J. I.; J. P. T.; J. E. G.; J. E. W.

K.—Dr. K. Knowles, Rawdon; Messrs. Kutnow and Co., Lond.;

L.—Miss Lysaght, Mallow; Dr. R. J. Ledlie, Hoyland.

M.—Dr. E. R. Morton, Lond.; Mr. W. J. H. MacGillvray, Grimsby; Dr. G. D. McRae, Ayr; Mr. R. E. Montgomery, Nairobi; Manchester Corporation, Clerk to the; Manchester Guardians, Clerk to the; M. L.; M. V. J.; Mr. J. More, Rothwell.

N.—Mr. Sheffield Neave, Ingatestone; Dr. E. F. M. Neave, Manchester.

O.—Dr. J. O'Conor, Buenos Aires.

P.—Messrs. Priest and Halliwell, Liverpool.

R.—Reuter's Telegrams Co., Lond.; Mr. E. Rötger, Lond.; Messrs. E. J. Reid and Co., Lond.; Mr. J. W. Roberts, Thirsk; Mr. R. P. Rowlands, Lond.; Mr. W. Ramsay, Melbourne, Australia; Mr. W. Reynolds, Lond.; Dr. Repezeanu, Bucharest.

S.—Mrs. Silvester, Knutsford; Dr. E. Stewart, East Grinstead; St. Peter's Hospital, Lond., Secretary of; Dr. W. Somerville, Avon Bridge.

T.—Mr. F. H. Tetley, Skipton; Dr. J. J. Thompson, Kamloops, Canada; Mrs. T., Walham Green.

V.—Vitalia, Lond.; V. S.

W.—Mr. W. P. Walsh, Cahir; Mr. J. Williams, Bradford; Mr. J. Wishart, Edinburgh.

EVERY FRIDAY.

THE LANCET.

PRICE SIXPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.*		TO THE COLONIES AND ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

* *The same rate applies to Medical Subordinates in India.*

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications	Five Lines and under £0 4 0
Official and General Announcements	
Trade and Miscellaneous Advertisements and Situations Vacant ...	Every additional Line 0 0 6
Situations wanted: First 30 words, 2*s.* 6*d.*; per additional 8 words, 6*d.*	
Quarter Page, £1 10*s.* Half a Page, £2 15*s.* An Entire Page, £5 5*s.*	

Special Terms for Position Pages.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Advertisements (to insure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to advertisements; copies only should be forwarded.

Cheques and Post Office Orders (crossed "London County and Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 35, Rue Franklin, Asnières, Paris.